

WONDERS *of* THE PAST

Third Volume

J. A. HAMMERTON

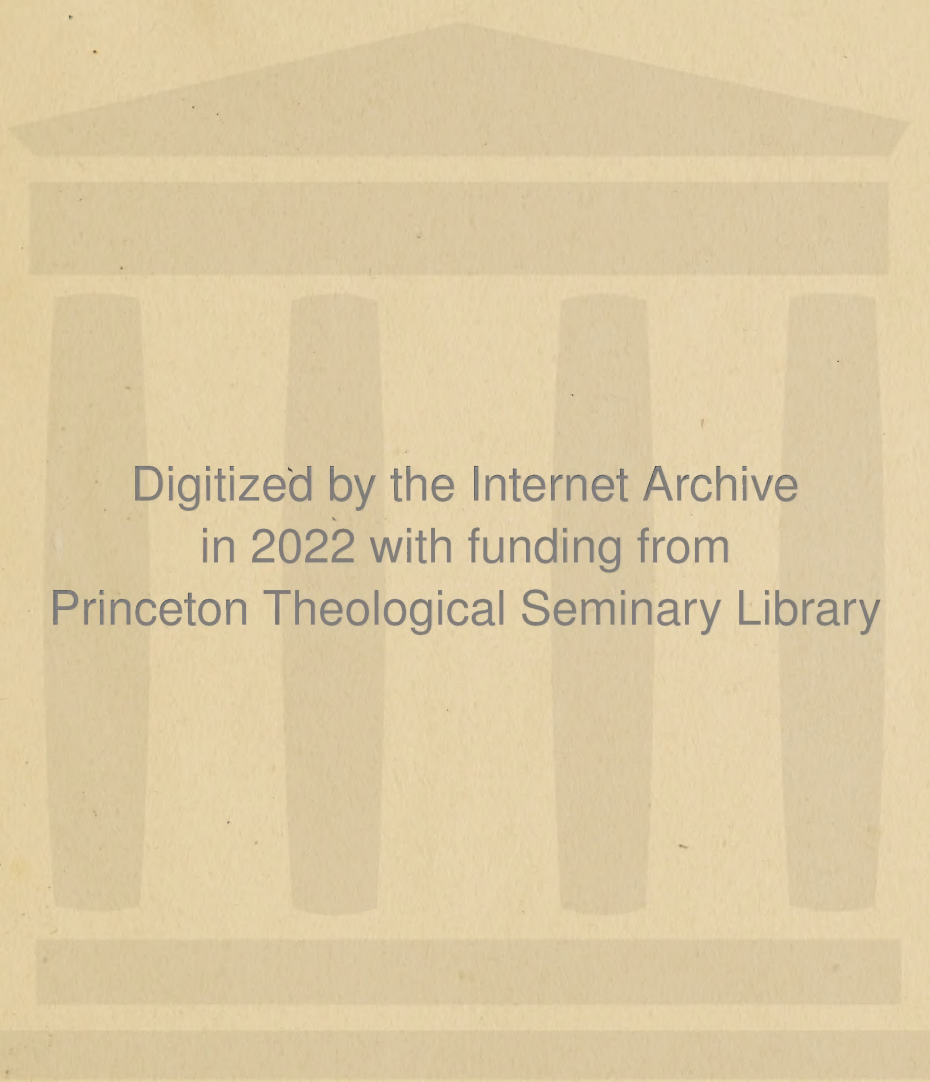
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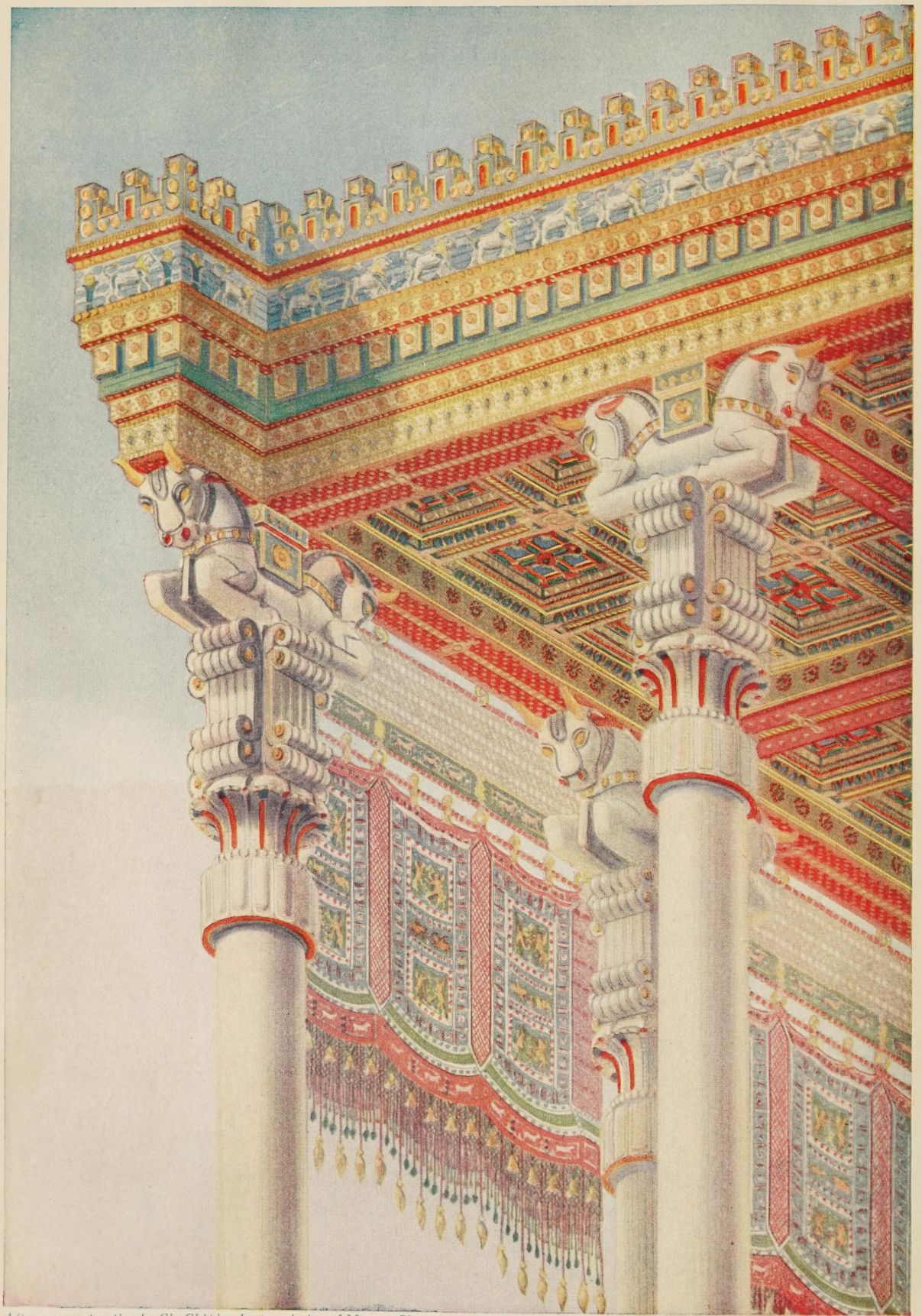
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CEDAR-WOOD CEILING OF THE HYPOSTYLE HALL OF XERXES

Even such perishable materials as the curtains and hangings of the gorgeous throne-rooms of the kings of Persepolis are not beyond comparatively faithful reconstruction, owing to the representations of canopies and pavilions in the monuments. Hanging tapestries have, therefore, been introduced without misgiving into this restoration of the columns and roof-decoration of the Hypostyle Hall of Xerxes. For the rest, the bull-headed columns are of limestone, and the beams and panels of richly-painted cedar-wood.

WONDERS OF THE PAST

THE ROMANCE OF ANTIQUITY AND ITS
SPLENDOURS

EDITED BY
J. A. HAMMERTON

WITH MORE THAN 1500 ILLUSTRATIONS INCLUDING
100 FULL PAGE PLATES IN COLOUR

IN FOUR VOLUMES



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WONDERS OF THE PAST

THE ROMANCE OF ANTIQUITY AND ITS
SPLENDORS

J. A. HAMMINGTON

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Wonders of the Past

THE WONDER CITIES. XIII

CARCHEMISH OF THE HITTITES

By C. LEONARD WOOLLEY

CARCHEMISH OF THE HITTITES

BY C. LEONARD WOOLLEY

Author of "Dead Towns and Living Men"

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A GREAT and opulent city, where a vigorous art flourished, and powerful kings ruled four thousand years ago, the fragmentary remains of Carchemish have only in recent years been partially unearthed, thanks to the enterprise of the British Museum; and of the rich results of the excavations the following chapter in its pictorial element bears witness. The famous archæologist who writes this chapter was himself for several years director of the Carchemish excavations, and the thrilling story of his adventures is told in "Dead Towns and Living Men."—EDITOR.

JERABLUS is a small Arab village lying some seventy-five miles north of Aleppo on the right bank of the Euphrates, at the point where that river comes closest to the Mediterranean Sea. When the Germans planned the great railway which was to link up Bagdad with central Europe, it was here that they put the thousand-yard-long steel bridge by which their trains might cross the river.

Unconsciously, perhaps, the modern engineers were carrying on a tradition very many centuries old. For Jerablus is the site of Carchemish, and Carchemish owed its being and its greatness to the fact that here one of the few fords of the upper Euphrates made easy communication between East and West. To Carchemish came the caravans laden with the merchandise of Mesopotamia, of Persia, and of Kurdistan; here they met the traders from Egypt, Phœnicia, and the Hittite north; and from all these the kings of Carchemish took toll. No wonder that the city grew rich and ranked foremost among the North Syrian states.

The Hittites were originally an Asia Minor people. They were a confederacy rather than a race, for some elements of them were of a native Caucasian stock while others spoke an Indo-European dialect remotely resembling Greek and were undoubtedly related to those early inhabitants of the Greek islands to whom the wonderful civilisation of Crete was due. During much of their history they were divided up into independent states often allied together, sometimes making war on one another, and only towards the end submitting to the rule of a single overlord. As early as the twenty-fourth century before Christ they must have been fairly civilised, for we find planted in their midst trading colonies from Mesopotamia whose records show that the country was well organised with up-to-date business methods and a developed judicial system. At that time they may have been subject-allies of Mesopotamia; but if so the tables were turned and the war-like character of the Hittites was proved when about 1750 B.C. they raided and sacked the city of Babylon. At a rather earlier date Abraham is said to have found Hittite landowners at Hebron, and Esau married with the daughters of Heth; probably it was some time before the Babylonian raid that they had established themselves firmly in North Syria and at Carchemish, on the far side of the Amanus mountains, set up an outpost of empire.

Carchemish had been in existence long before that, but on a humble scale. It had started as a village perched on a little rocky knoll jutting out into the Euphrates. This original mound was gradually raised in height by the accumulated rubbish of generation after generation of houses built of unbaked mud brick, and in due time became a fortress enclosed by a wall of defence. But as trade along the caravan routes increased and the town waxed more important, the old fortified hilltop became too small for the people's needs; houses were built on the low ground at the mound's foot, and in some period of prosperity the city's ruler threw up a second line of defence including all the new quarter; this consisted of an outer ditch and an earth mound some 60 feet high along whose top ran the wall proper; it enclosed an irregular more or less oval area measuring some 600 yards by 500.

The natural result was that the original mound became as it



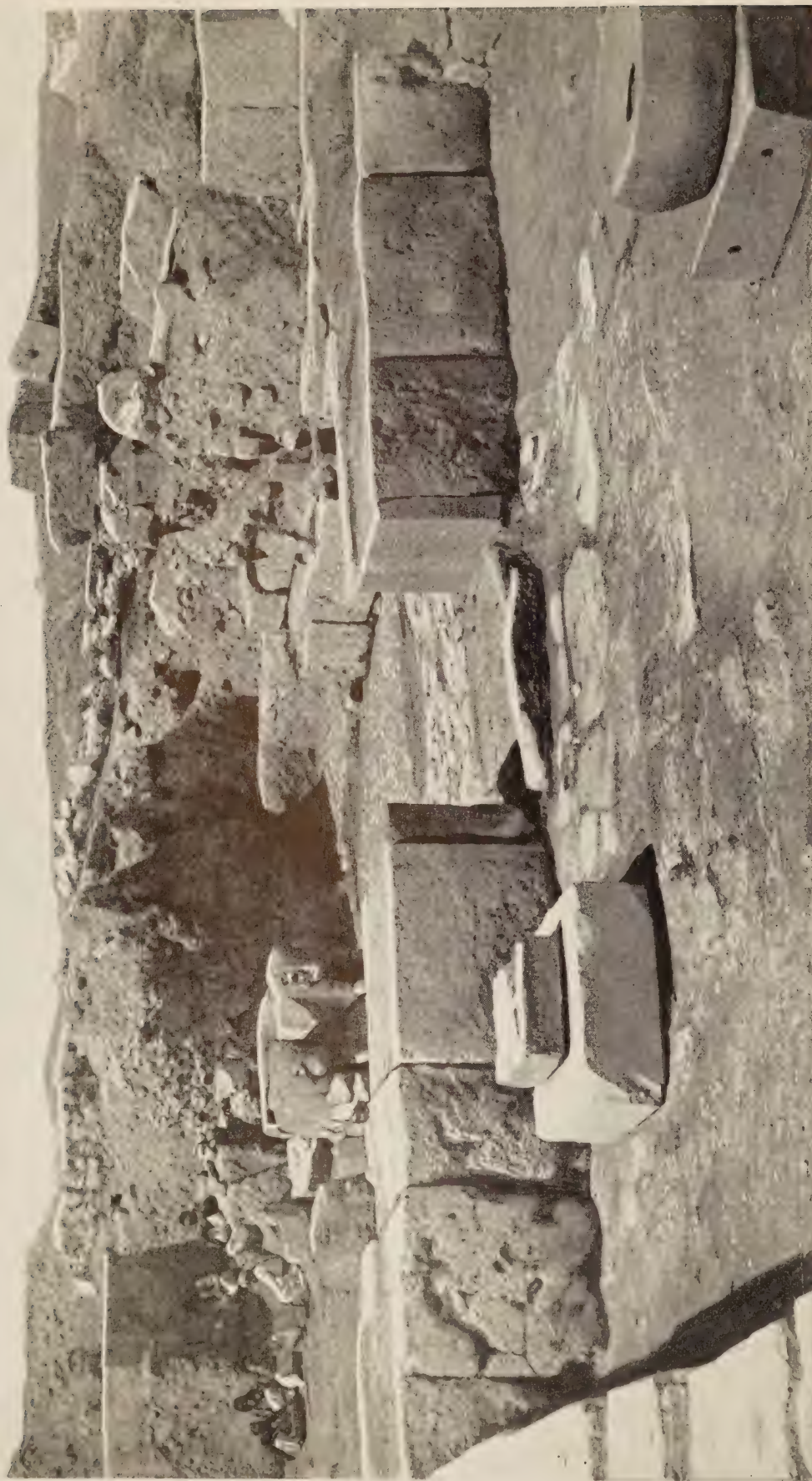
SHIELD-BEARING HITTITE SPEARMEN

Arrayed in their tall, plumed helmets, the subjects of this pictured scene on the long processional wall are not unlike two Athenian soldiers of the fifth century B.C. Each in the fashion of his corps is armed with a heavy spear. They march in twos towards the palace door, where the wall turns and the scene changes again.



IMPOSING FRIEZE OF PROUD WARRIORS SCULPTURED ON A PALACE WALL OF CARCHEMISH

The dignity of this representation of Hittite swordsmen, sculptured on a fine processional wall set up in a wide square between splendid palaces, recalls the might and power that once were in Carchemish. In front of the swordsmen is the charming representation of the royal family standing to welcome them home. The wall is different from any other yet found in that the frieze is not on the ground level, but stands some four feet up over courses of plain and heavy masonry.



NOW OPEN TO THE LIGHT OF DAY: THE ONCE DARK AND MYSTERIOUS SHRINE OF A HITTITE GOD

The spectator is now standing within the small Holy of Holies of the Temple and looking out through the doorway to the temple court. No sculptured friezes adorned this inmost sacred shrine, the lime-stone slabs were plain, only the basalt door-jambs having inscriptions on them; but the upper walls, now destroyed, were faced with beautiful glazed bricks in blue and yellow. Directly before the doorway stands a great bull-supported stone laver. The whole temple, and more especially this central cell, narrow and plain, are quite unlike Assyrian sanctuaries, but bear a strange resemblance to the House of Jehovah built for Solomon by the workmen of King Hiram, who, imitative Phoenicians that they were, may well have sought architectural inspiration at Carchemish, the great city of the Syrian hinterland.



CARVEN GODS OF CARCHEMISH

Symbol of victory, a figure of Ishtar, naked, winged, and clasping her breasts, stands among the company of the gods in the triumphal frieze of the great square in the midst of royal Carchemish.



THE HORSEMEN AND THE CHARIOTS THEREOF

The chariotry of the Hittites was one of the terrors of old Egypt before the Egyptians too had imported and learnt to master the horse. Here we see bowman and charioteer proudly charging over a stricken foeman of Semitic appearance—part of the same narrative frieze from the public square of Carchemish as the slab above.



THRONED UPON LIONS, A HITTITE GOD AND HIS EAGLE-HEADED ATTENDANT

If the Greeks achieved the highest conception of majesty and beauty in godhead with the Zeus at Olympia, surely the grim and awful aspects of divinity have never been more ruthlessly realised than in this square-hewn statue of a Hittite god. The primitive qualities apparent are probably a survival due to religious conservatism, for by comparison with the neat and modern-looking soldiers of the bas-reliefs it is archaic and almost grotesque.

were the keep of the castle; the old houses huddled on it were swept away, and in their place rose the palace of the king, the barracks for his soldiers, and, probably temples for the gods. When this change took place we cannot as yet say. It may have come soon after 2000 B.C., corresponding to the beginning of the Second Hittite period, when the northern influence was reinforced in Syria; but it is also tempting to place it towards the middle of the second millennium before Christ, when the Hittite empire reached the zenith of its power.

Early in the fourteenth century, Subbiluliuma, king of the main Hittite tribe whose capital was at Boghaz-keui (Khatti) in Cappadocia, made himself overlord of the whole of Asia Minor and North Syria. His conquests brought him to the frontiers of the Egyptian empire, and since his ambitions did not stop there, there was from then onwards a state of constant warfare between the Hittite kings and the Pharaohs. The main event of this long-drawn duel was the great but indecisive battle of Kadesh (1829 B.C.); its result was the exhaustion of both parties, and when about 1271 B.C. peace was concluded by a treaty of alliance the Hittite power had already passed its prime. Some seventy years later Asia Minor was thrown into turmoil by the irruption of conquering tribes from south-eastern Europe; the enfeebled kingdom of Boghaz-keui could make no stand against them, and the empire of the Cappadocian Hittites was utterly wiped out. The invaders, reinforced by contingents from all the peoples whose territories they had overrun, pushed down into Syria, destroying Carchemish en route, and were only stopped by **Rameses III.** on the very borders of Egypt.

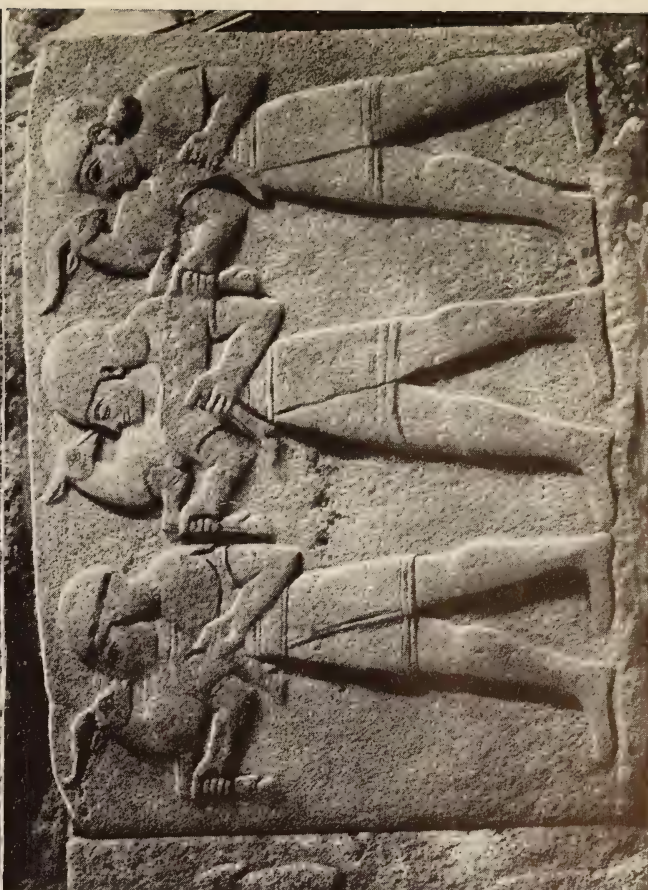
It was not a raiding army that **Rameses** defeated; it was a host of emigrants who from their lost lands had brought their wives and what remained of their possessions in the search for a new home. Shut out from the Nile valley, they settled down in the countries through which they had just passed, the Philistines in the south of Syria, in the north a people, Moschoi or Kaskians, who were, if not by blood at least by tradition and civilisation, the heirs of the Asia Minor Hittites. By them Carchemish was rebuilt, and henceforward it figures as the chief state of the new "Hittite" Empire in North Syria.

The greater part of the monuments unearthed by the British

Museum Expedition, which between 1911 and 1920 has worked at Jerablus, belong to this latest phase in the history of the town. Of the prehistoric settlement there is little to show except flint implements and broken pottery, though when excavations have been carried deeper down into the piled-up ruins of the original village more may be brought to light. Of what may be called the First Hittite period there has been found the ring-wall of the earliest citadel, a few houses within it, and below the floors of these some contemporary graves—stone-lined cists wherein the dead lie at full length, with their weapons by their sides and pottery vessels heaped up in the corners, prominent among these being tall-stemmed goblets like shallow wineglasses (perhaps really lamps) which have given rise to the nickname of the “champagne period.”

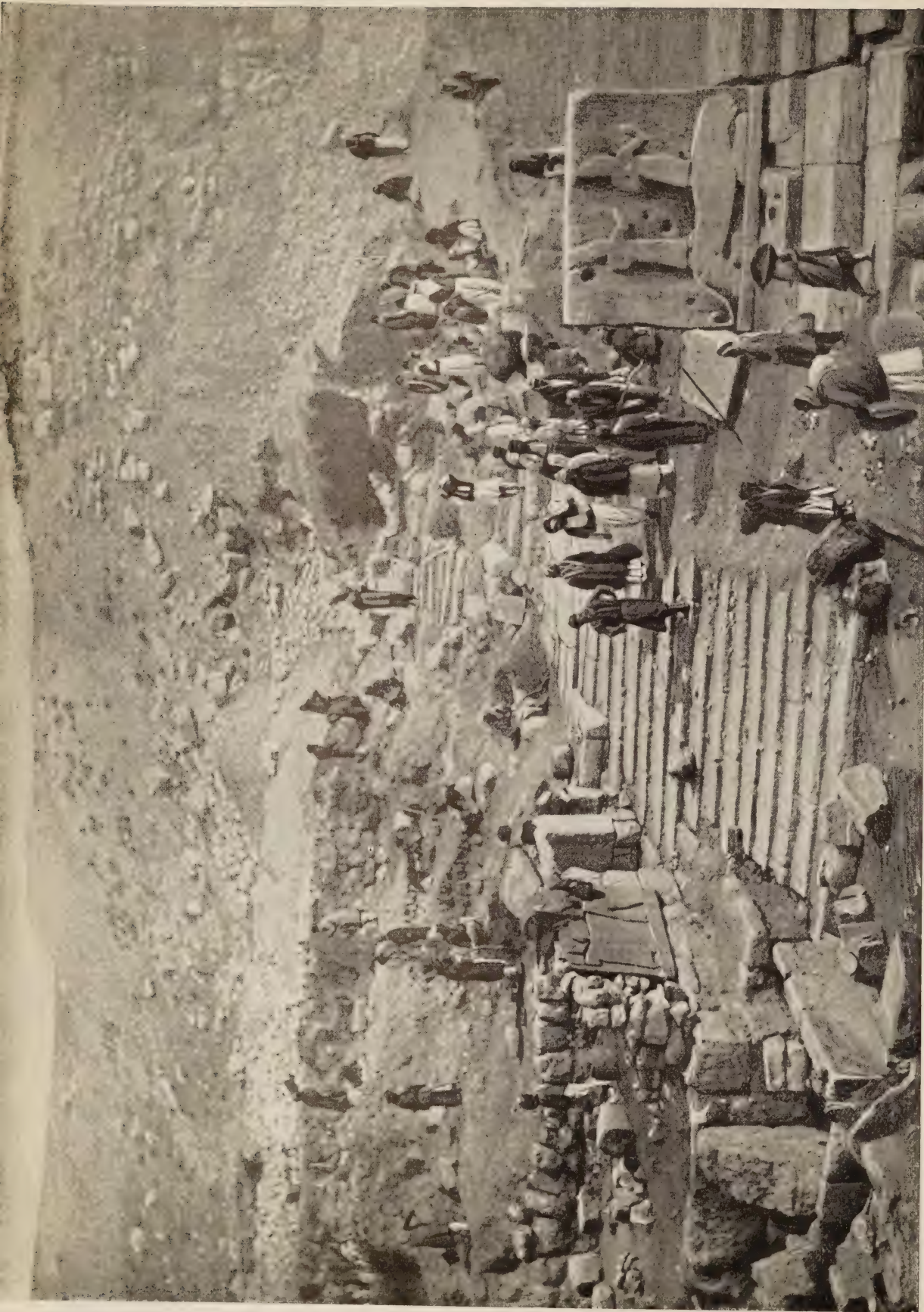
The walls of the inner town belong to the Second Hittite period. On the landward side they consist, as has been said already, of a huge earth rampart once capped by a builded wall; along the river front, however, the earthwork fails and the wall rose straight from the water's edge; it was built of brick above, and below of massive stone. The Hittite masons believed in solid construction, and in this river-wall there are blocks measuring fifteen feet by four and a half, laid without mortar but so accurately joined that even to-day one cannot drive a knife-blade between the stones. The same megalithic work is found in the south gateway, where the pier-ends are formed of single slabs more than four feet high and nine feet across. This gate was an impressive monument. The approach was guarded by stone lions whose open jaws and bared teeth might strike terror into the heart of an enemy; high towers flanked the arched gatehouse; the paved road, its flagstones worn into ruts by the wheels of the chariots, passed through three great folding doors set one behind the other into the main street that led to the citadel; in one of the recesses of the entry stood a colossal statue of white marble, the bearded and turbaned figure of a Hittite king.

Inside the town the buildings of the Second Hittite period have, so far as we can tell, without exception been destroyed by the twelfth-century invaders; a bed of ashes covers their scanty ruins, and such sculptured stones as survive owe their preservation to having been re-used in later buildings. The burial customs



FOUR SECTIONS OF THE CONTINUOUS FRIEZE AT CARCHEMISH CELEBRATING THE ARMY'S RETURN

Behind the royal family in the triumphal frieze are the musicians (in a recess), and a goddess on a lion throne followed by priestesses with offerings and ribbons, and priests bearing gazelles.



STEPS THAT CLIMBED THROUGH THE TERRACED PALACE OF THE KINGS OF CARCHEMISH

Armies of Arab workmen are here shown employed on the excavations at Carchemish; the quarter upon which they are at work is the magnificent staircase that climbed the hillside from the great square in successive stages, through the heart of the royal palace. On either side once ran a series of reliefs showing the gods and their worshippers, and on every landing there was a double door guarded by black basalt lions. At the foot of the staircase, on the right, is a remarkable isolated slab of limestone showing the god of the sun and the god of the moon standing together on the back of a lion, and before it may just be seen the block hollowed out for the reception of offerings from those who passed by.



CAPTAINS OF THE HITTITE ARMY IN PROCESSION, OF WHOM THE FOREMOST BEARS AN OLIVE-BRANCH

This is the left-hand angle of that same buttress illustrated on another page, wherein the king and his son are standing to greet their victorious army; they may be seen here again on the right. In the re-entrant of the buttress is a lion pedestal from which the statue is missing, and the corner is formed of a block inscribed with those mysterious characters whose meaning is still unwon, and of which examples are shown enlarged on other pages. On the slabs are low reliefs of the captains of the various sections of the army—almost Greek are those on the left in their arms and bearing, possibly Carians in fact; although the others, with their long robes, are more Assyrian in appearance.



A PUZZLING TALE OF VICTORY

That this Hittite inscription tells a story of conquest is eloquently borne out by its last line of severed heads and hands. Yet the decipherment of the Hittite inscriptions is one of the puzzles of modern archaeology and awaits the discovery of a new Rosetta Stone for its solution. Many attempts have been made to decipher this strange medley of picture writing, but nothing has been proved. For this reason the history recorded on the processional wall may remain wrapped in mystery for many a day to come.



THE MOUND THAT WAS THE TOWN OF CARCHEMISH ON THE BANKS OF OLD EUFRATES

Records of many powers, dynasties and cultures have been unearthed from the mound of Jerablus—an Assyrian fort, Greek remains, and the walls of a Roman military post. But undoubtedly those with the greatest interest for us, human and archaeological, are the ruins that tell the tale of the days when the mound was a flourishing and powerful city, the seat of kings, the centre of empire, a town whose name and people are made familiar to us by the Bible—Carchemish of the Hittites.

of the time are best shown by a large graveyard which was found and plundered by the natives at a place called Amarna eight miles down the river. There we find stone cists like those of the preceding age, with bodies buried at full length; but the bronze weapons are of new types, the old "champagne" pots are wholly absent, and the beautifully turned and burnished clay vessels show an immense advance on those found in the citadel graves.

Much more violent is the break in continuity between the Second Hittite period and the Third; excavation proves that the people who after 1200 B.C. re-established Carchemish were very different from its old inhabitants. That they inherited the Hittite culture is clear enough, for they wrote in the same hieroglyphic script as is found on monuments all over Asia Minor, and their sculptures and their jewelry are Hittite, though the former may at times betray the influence of Assyrian art. But they cremated their dead instead of burying them, and this means much, since burial customs, reflecting religious beliefs, are always conservative; they used iron instead of bronze, and they introduced a type of pottery which both in its forms and in its painted decoration is in startling contrast to anything that had gone before in North Syria. It is fairly certain that they must have come from the south-west of the Asia Minor peninsula, where they had formed part of the old empire of Boghaz-keui.

The newcomers were fully prepared to do justice to their own traditions and to the past greatness of Carchemish. They not only rebuilt the town, but they enlarged it. New quarters rose into being beyond the old earth rampart, and as these grew in importance they in turn were safeguarded by a new city wall of stone and brick which enclosed an irregular area some thirteen hundred yards long by a thousand yards across; the old ditch and mound still remained in use as an inner line of defence, and the citadel, whose revetted sides rose a hundred feet above the palaces at its foot, formed the last refuge in case of disaster.

Fortunately, the buildings of this period are well preserved, and from them we can gain a knowledge of Hittite art such as was impossible when almost the only material for study was afforded by the weather-worn rock-carvings of Asia Minor or the third-rate sculptures of provincial towns. Here in the capital

of the later empire the best artists were available, and no expense was grudged for the adornment of the city's monuments.

The British Museum's excavations covered but a very small part of the town's area, but have laid bare at least in part what must be some of its most important buildings.

From a gateway in the river wall, richly decorated with sculptured reliefs, a broad road ran inland, skirting the citadel, to a wide square set between splendid palaces. One of these was built in terraces up the steep slope of the mound and covered part of its summit. From the public square a wide stone staircase ran up through the building; the walls on either side had a dado of black basalt whereon were boldly-cut reliefs of the great gods and their worshippers; at each terrace level the flight was interrupted by a narrower landing shut off by massive folding-doors on whose lintels was carved the winged disk of the sun, the emblem of royalty; at the corners of the landings basalt lions supported the upper masonry and glared defiance at the intruder. Some of the broken sculptures are now in the British Museum, brought back more than forty years ago; of the rest, only fragments were found still in position; but the staircase itself remains, ruined but imposing, to witness to the spacious life of the old Hittite princes.

To the right of it yet stands as it was first set up one of the most striking monuments of the site; it is a huge limestone slab whereon are carved the gods of the sun and of the moon standing upon the lion which symbolises their might. It was never part of a wall, but an isolated monument put up in the god's honour, and before it is a block of basalt hollowed to receive the offerings of the pious passer-by. Behind it, against the palace wall, stands the base of a statue gone long since—a pair of stalwart oxen hewn out of basalt. Their horns were of metal, probably gilt, and their eyes were inlaid with coloured stones or glass to give a livelier effect; but for all the realism of detail and of movement there is about them an artistic restraint which makes them truly statuesque.

To the left of the staircase a wing of the palace projects out on to the low ground at the foot of the mound, forming one side of the public square and closing the vista from the water-gate. The whole of the long wall that thus faces down the road



HITTITE VICTORS AND THE GODS IN WHOSE NAME THEY FOUGHT, ON CARCHEMISH PALACE WALLS

On the left-hand side as one faces the royal steps a wing of the palace projected along one side of the great square; on it was a long, continuous frieze showing with spirited freedom the triumph of Hittite arms, while next to the steps stood the company of the Hittite gods as though to bless the victory. Among these latter, the figure of an Ishtar-like personage is seen as also is one of the triumphant chariots. In the centre of the wall, and visible here towards the right, is a limestone slab bearing presumably a record of the victory, but to archaeologists it is still indecipherable.



ONCE BRIGHT WITH COLOUR, AND WITH OUTLINES STILL CLEAR AFTER 3,000 YEARS:—

On one side of the great public square at Carchemish is a building, of which the doorway is set back in a recess forming a deep bay in the enclosure; and on the walls of this recess are the most notable reliefs discovered on the site. Portions of them are illustrated elsewhere, but in the photograph above they may be seen in their relations to each other, without which it would be impossible to realise their fine effect. On the left are the "mighty captains" heading a returning army, which is greeted (on the front of the buttress) by the king, the



—RELIEFS OF A PUBLIC FUNCTION IN THE DAYS OF THE SPLENDOUR OF CARCHEMISH

crown prince, and the younger children. In the small recess (a subsidiary gateway) are the musicians; at the angle is the goddess on her lion throne; and then follow her priests and priestesses. On the extreme right is the main doorway, and against one of the door-jambs is the grim seated god illustrated in detail elsewhere. The reliefs were originally picked out in colour which must have given an indescribably brilliant effect, and even now that the colour has vanished, we realise that we are in the presence of a true work of art.



THE HITTITE ROYAL FAMILY WELCOME THE CONQUERING ARMY

In this charming scene we see a Hittite king, the crown prince, and children marching soberly from the palace gates to greet victorious troops. The royal children are represented in the top of the double panel walking in solemn procession, but in the lower panel are other children who have relapsed frankly to a more congenial pastime and are seen at their childish play—perhaps tossing knuckle-bones or playing whip-top. A nurse brings up the rear of the procession, carrying the baby of the royal house, and leading, too, at the end of a string a pet animal whose name—a pretty piece of sentiment—is inscribed above its head.

was covered with sculpture. As was often the case with Hittite buildings, the carved slabs were alternately of blue-black basalt and of white limestone. Originally the former were touched up with colour, just as the Egyptians enhanced the details of their granite sculpture, and the limestone, smoothed off with stucco, was more richly painted. The great frieze of life-size figures, their moulding thrown into relief by the sharp shadows of the eastern sun and the bright colours of the limestone contrasting with the more sombre tones of the basalt slabs, must have been astonishingly effective. Here the subject of the frieze is continuous, the Hittite army returning from battle in triumph. Chariots drive over the prostrate bodies of the Semitic foe, foot soldiers with spears at the slope carry severed heads; all advance towards the staircase, and there at the front of the procession are the chief gods of the city; in the middle, a long hieroglyphic inscription records the story of the campaign.

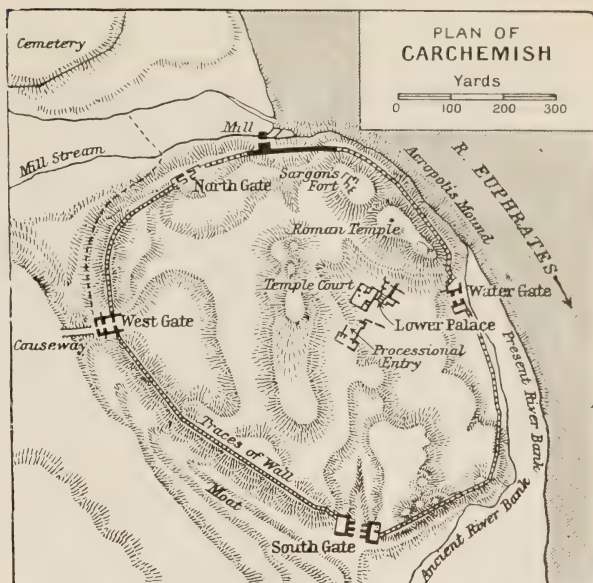
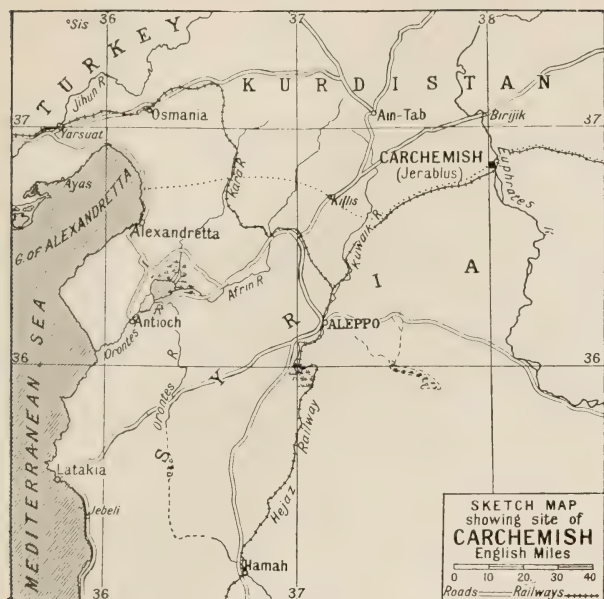
The decipherment of the Hittite inscriptions is one of the puzzles of modern archæology. At Boghaz-keui, the old northern capital, German and other excavators have unearthed a vast number of clay tablets, some of them written in Babylonian, others in cuneiform characters but in the Hittite tongue. These documents are the state records of the fifteenth to the thirteenth centuries B.C., and have not only yielded the most valuable historical information about Asia Minor, but have laid the foundation for the study of the Hittite languages. But the hieroglyphic script, unfortunately, still remains a mystery whose certain solution awaits the discovery of a new Rosetta Stone; many attempts have been made to decipher this curious picture-writing, the most consistent and convincing being that of Professor Sayce, but nothing is yet really proved. So the history recorded on the great slab in the long Wall remains a riddle for us; but that it is a tale of victory is shown by its last line, where a row of severed heads and hands is eloquent of how the enemy fared.

At the end of the Long Wall, where another street runs into the public square, a half-cone of basalt has been let into the ground against the corner of the masonry to protect it from damage by the wheels of chariots taking the turn too closely; it is a curiously modern touch!

Behind the Long Wall lies one of the most interesting build-

ings yet found at Carchemish, for this projecting wing of the palace is occupied by a small shrine or "chapel royal." The whole area is divided into two rectangular courts, cobble-paved and set at slightly different levels. The lower court, entered both from the street and by a private doorway from the staircase, has store-rooms or priests' chambers along two of its sides, while a third side is open and defined only by a step leading to the upper court. At the back of the upper court and opening on to it is the shrine proper. Its walls, of plain limestone slabs below, rose up in brick-work enamelled bright blue and decorated with white and yellow daisies; the door-jambs are of basalt and bear long hieroglyphic inscriptions; the interior of the building is a perfect square, quite small and unadorned. Facing the door of the shrine there stands in the middle of the upper court a great basalt laver or basin supported by two oxen; behind it, in a corner, are the remains of an altar of burnt offerings built of unhewn stones and earth. Ashes and bones of animals still lay thick upon it when we dug it out. The whole structure, which was put up, probably, between 1100 and 950 B.C., answers strangely to the description of the temple which soon afterwards was built by Phœnician architects for King Solomon; the division into courts of the Jewish temple, the chambers round its outer court, the square and unadorned "holy of holies," the "brazen sea" supported by twelve oxen, and the position of the altar of burnt sacrifice, are all paralleled at Carchemish and may well reflect this northern prototype. Hiram, King of Tyre, who supplied the builders for Jerusalem, had close relations with the Moschian or Kaskian kingdom of Carchemish, and Phœnician art, always derivative, owed not a little to the more original work of the Hittites.

Facing the staircase, on the opposite side of the square, lies another large building of which little more than the façade has yet been cleared; the whole of this is decorated with reliefs three feet high. Those facing on the square itself represent a queer medley of mythological beings and scenes whose meaning and connexion we cannot yet identify; but opposite the temple wing the building falls back in a deep recess leading up to its principal gateway, and along this are some of the most important as well as the best preserved of the Carchemish sculptures, giving in one connected whole the welcome home of a victorious army. Foot



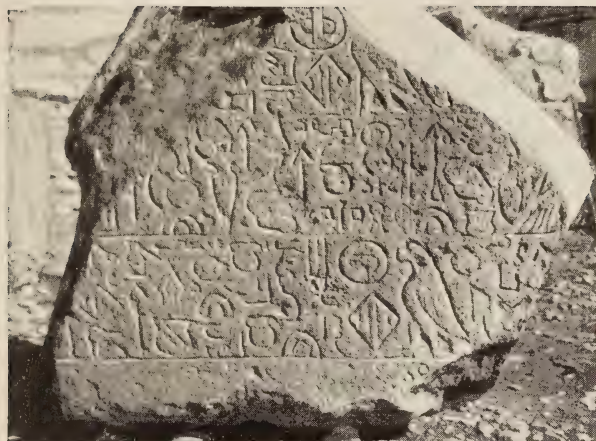
WINGED GODS BEFORE WHOM EVEN THE LION IS QUIESCENT

This boldly wrought relief of the Hittite gods of the sun and the moon poised resolutely on a lion's back surely has a meaning far deeper than words. Probably the slab represents some far back allegory of the human soul, for the Hittites were a spiritual if superstitious people, as their records, which have come to us down the long galleries of time, clearly show.



STOLID BULLS OF STONE OUTSIDE THE PALACE AT CARCHEMISH

Two robust and patient bulls, with the pedestal of a statue supported between them. Was it in some such work, that Hiram, the clever artificer fetched by Solomon from Tyre, found his model for the "Brazen Sea" which "stood upon twelve oxen" (1 Kings vii. 25)?



AN INSCRIBED BASALT ALTAR

The small characters are of a peculiar, cursive type, sketchily incised. Their meaning is still uncertain, for none of the many scholars engaged in the work has yet succeeded in raising the veil of mystery which enshrouds them.



RARE EXAMPLES OF A HITTITE SCULPTOR'S ART

Were they kings who once ruled Carchemish and now walk the kingdom of the dead? That they were important men can be seen from the style of their luxuriously curled beards.



CHARACTERS ON A HITTITE DOOR-JAMB

This Hittite inscription is photographed from a paper "squeeze" from the original; on this black basalt door-jamb, later re-used and built into a pavement, are to be seen the weird characters as they actually appear.



EAGLE-HEADED PROTECTIVE DEMONS

They represent a type of being closely resembling the gryphon of Greek mythology, avowedly an Eastern symbol. It may be inferred, then, that the Greeks derived their mythical figure from the Hittites by way of the peoples of Asia Minor, who probably owed their hawk-headed creatures to Hittite predecessors, they in turn being influenced by the Assyrians.



LORD OF THE BEASTS

A mythological scene in which some divine being's lordship over nature is typified by a retinue of beasts. It is instructive to compare these Hittite animals with the Assyrian representations; here artistic treatment of man and beast is on the same level.



ANIMAL-HEADED DEITIES IN THE HITTITES' VAST PANTHEON

Like those of the Assyrians who triumphed over them, these ancient gods passed into the light and out again. Cleverly wrought thousands of years ago, they stand looking out over the world while the generations pass, and while the caravans of camels go by below and the peasant ploughs with his ancient plough century after century.

soldiers, whose panoply and crested helmets recall those of the classical Greeks and are probably those "Carian" arms from which the Greeks claimed to have derived their own, advance towards the gate headed by five captains whose varying equipment of heavy spears and light lances, bows, swords, and maces, is that of the different branches of the army; the leading captain carries a sprig of olive. Then, at a corner of a buttress, comes a long hieroglyphic inscription, and, on the buttress face we have the royal family coming out to welcome the troops. The sculptor has not only given us the king and his son (their names and titles are carefully written against each figure), but behind these he has put the children of the royal house. Those in the upper rank walk sedately enough in the procession, but cling to their toys none the less, while other children below are frankly playing with whip-tops and knuckle-bones; behind them the nurse comes carrying the baby and leading its pet animal on a string.

Here the scene is interrupted by a secondary entrance with staircase, but on its side wall is another sculptured slab showing the musicians placed quite naturally out of the line of march. Then comes the statue of the goddess on her lion throne, and behind her a long line of priestesses carrying wine and corn and consecrated ribbons, and temple servants bearing gazelles for the sacrifice. On the back wall of the recess, by the main entrance, are more soldiers, the town guard turning out to greet their comrades. Against the inscribed door-jamb sits on his lion base a great black stone god; to the squat and clumsy figure the artist has contrived to give an air of brutal strength which is impressive enough even to an unbeliever.

Of the building itself only the double gateway, the guard-chambers, and the sculptured inner court have been cleared. We know that above the sculptured slabs the brickwork of the outer wall was covered by a panelling of cedar-wood (a "house of the Forest of Lebanon"), and that the door was of cedar-wood panels bound with bronze, but we have no knowledge about the internal arrangements of the building.

In the outer town, however, a few private houses dating from the last days of Carchemish have been excavated, and throw an interesting light on the life of the ordinary people. The best of these also bore dramatic witness to a known historical

event. It was a large villa with steps going up to its front door and a small railed-in porch which gave it a curiously modern and suburban air; it had good-sized rooms looking on to a central court, a staircase going to the upper storey, and by this a long passage like a cloak-room with a small closet below the turn of the stairs.

The house had been destroyed by fire, and the ruins were littered with arrow-heads and broken weapons, showing that a fierce room-to-room struggle had taken place here at the moment of its destruction; the objects found in the ashes included an Assyrian inscribed tablet, bronze statuettes of Egyptian gods, a ring with the cartouche of Psammetichus I., and clay seal-impressions bearing the name of Pharaoh Necho.

Here was the whole history of the last days of Carchemish. Its rulers, vassals of Assyria, had long been carrying on intrigues with the kings of Egypt, and at last, reinforced by Egyptian armies, had risen in open revolt only to meet disaster; the battle in which this house—and all the city—was destroyed by fire was that of 604 B.C., when, as the prophet Isaiah records, Pharaoh Necho came up and fought with Nebuchadrezzar at Carchemish which is by Euphrates.

Archæology has taught us that the history of Europe does not begin with the rise of Athens, and that the roots of its civilisation spread farther afield than Greece and Italy. In following up the traces of those peoples, Egyptians, Babylonians, Hittites, and others who a hundred years ago seemed but symbols of an outer and mysterious barbarism, we are not satisfying an idle curiosity but amassing that historical knowledge in the light of which alone we can hope to understand the origin and the growth of our modern world. These children of Heth, so far from us in time and space, are yet our forbears, and have helped to make us. We know but little of them as yet. The Great War and the aftermath of the war have sadly interrupted the excavations at Carchemish; but when peace comes again to the Near East science as well as piety requires that we should start afresh a work which has already yielded such good fruit.



SPIRITED HITTITE SACRIFICIAL SCENE

This low relief represents the sacrifice of a young lion before the god Teshub, the figure grasping an axe in his upraised hand on the left, an anthropomorphic deity, as he appears to be taking a very active part in the ceremony himself.



MODERN WORKMEN ON AN ANCIENT WALL AT CARCHEMISH

Nothing is too small or too apparently insignificant to escape the eagle eye of the archaeologist, for it may have its own story to tell. Here is a small section of the buried processional wall which has just been unearthed after a long estrangement from the world and restored to the position it enjoyed ages and ages back. Memories of centuries of Hittite life encircle it and immense knowledge of forgotten empires, religions, wars, and migrations are gathered up in it—precious facts like jewels more wonderful than the casket which contains them.



SPIRITED BATTLE BETWEEN JEALOUS BULLS

Standing on flagged pavement or cobbled court whose polished stones have not known the tread of man's feet since Carchemish went down in smoke and tumult two thousand five hundred years ago, one gazes in silent awe at long rows of sculptured figures, gods, fighting men, and beasts such as those above, with inscriptions in honour of long forgotten kings.



LION-THRONE FOUND AT CARCHEMISH

So often are the Hittite gods represented throned upon lions that the beast must have had some particular cult-significance. Here is one of the lion-flanked pedestals, now vacant.



MYTHICAL WINGED LION WITH HUMAN HEAD

The fusion of human and animal forms was a favourite theme of Hittite sculptors; but this relief, retaining the lion's as well as the human head, is unusual. These mythical figures represented the attributes of deities or certain physical phenomena in nature.

THE MASTER BUILDERS. V
THE MARVEL OF THE ROMAN
AQUEDUCTS

By F. A. WRIGHT

THE MARVEL OF THE ROMAN AQUEDUCTS

BY F. A. WRIGHT

Chief of the Classical Department, Birkbeck College, London; author of "The Girdle of Aphrodite"

EVERY nation, ancient and modern, has some concrete achievement which symbolises the character of the people. Modern America has its skyscrapers rising with gay audacity to heaven. Modern England has its fleets of ships, from the lordly liner to the tiny fishing-smack, questing a livelihood on the water. Ancient Greece, enamoured of beauty, had its temples and its statues to appeal to the imagination and fascinate the eye. Ancient Rome embodied its love of effort, of order, and of practical utility in its leagues of roads and its mighty aqueducts.

"*Tantæ molis erat*"—Virgil's immortal lines come back to one's mind when we consider the work of his countrymen in building, in making laws, and in governing the world. I remember still my first pilgrimage to Rome, many years ago, and of all the pictures that then impressed themselves upon my consciousness, the two most vivid were the first view of the Alps shining rosy in the morning sun as the train wound its way up laboriously from Culoz, and, later, the first view of the Campagna in the soft twilight of an Italian evening, the dark clumps of scattered and melancholy trees, the white strip of road with an occasional bullock-cart wending its way slowly home, and by its side the long line of huge broken arches, memorials of the mighty past, stretching towards the dim and distant outlines of the Alban hills. Those arches, serene in their shattered grandeur, are all that remain of the Claudia aqueduct, and modern Rome still draws

some of its abundant water supply from the actual conduits of which they once formed part.

In A.D. 537 Rome was besieged by the Goths and Burgundians, and the very accessibility of the aqueducts rendered them an obvious mark for attack. The conduits were broken, and at a point where several lines of aqueducts converged from different parts of the plain the barbarians established a walled camp, using the masonry as part of the fortification. One of the towers they then built, the Torre Fiscale, is standing to this day. After A.D. 537 the aqueducts were left neglected for over two hundred years; the water, instead of bringing life and health to Rome, flowed in stagnant streams over the plain, and thus it was probably that the dreary marshes of the Campagna, with their air of peculiar desolation, came into being. In A.D. 776 the great Pope, Adrian I., put in power by Charlemagne, began their partial restoration, substituting underground conduits for overhead arches, and the work was continued by his successors.

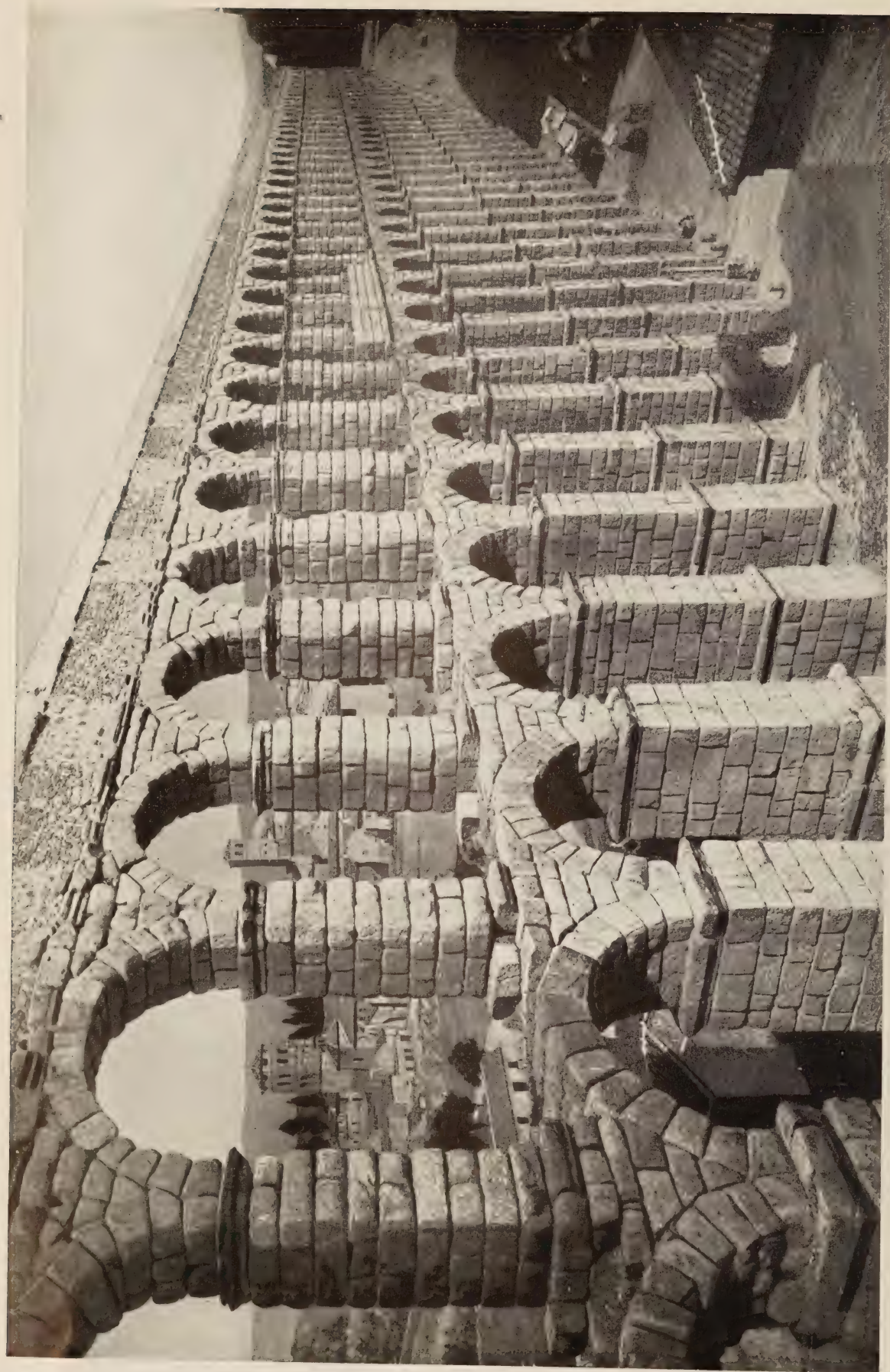
The Greeks, before the Romans, had seen the importance of a good water supply for cities, and some traces of the sluices they constructed from Lake Copais, in Bœotia, are still left to bear witness to their engineering skill. But the aqueduct, as we know it, was a Roman discovery, and derived its origin from several causes. First, perhaps, we should put the sheer love of building for itself—the same passion that animates the child with its box of bricks and its sand-castle—which was one of the strongest features of the Roman character. Second, comes one of their great material inventions, the arch, which rendered possible both the huge mass of the Colosseum and the aqueducts with their unbroken line of conduits supported by tiers of arcades beneath. The arch was to the Romans what the steel frame is to an American architect, and although there are traces of its use before them by the Asiatic Greeks, the development of its resources, which they realised, practically made it their own. The third, and in itself sufficient, reason is that guiding rule of architecture, the use of those materials that lie ready to your hand.

It has sometimes, rather foolishly, been supposed that the Romans preferred the raised aqueduct to the hidden conduit or pipe because they were unacquainted with the fact that water always rises to the level of its source. As a matter of fact, they



FRAGMENTS THAT REMAIN OF HADRIAN'S AQUEDUCT AT CARTHAGE, AND THE AQUA CLAUDIA AT ROME

The illustrations on this page show two more noble aqueducts from widely distant lands. Rome itself and one of her most important provinces. Top, the aqueduct at Tunis; it was built by the Emperor Hadrian to bring water from the inland mountains to Carthage. After its complete destruction in 146 B.C. Carthage was rebuilt and eventually in Imperial times, regained no small measure of its old importance as a Roman provincial town. Below, the Aqua Claudia crossing the Campagna. Above it are remains of the concrete-lined brick structure known as the "Anio Novus" or New Anio; the two conduits finally mingled just outside Rome.



SEGOVIA'S STREETS AND HOUSES CLUSTERING BENEATH THE BULK OF THE PUENTE DEL DIABLO

The universal instinct to say "here is perfection" is baffled when one must choose between the "Puente del Diablo" at Segovia and the Pont du Gard. If the latter has the more airy grace where it takes the Gard in its stride, the Devil's Bridge is the more solidly massive above the city streets; moreover, it justifies itself by being still in use to-day. Both are inimitable. The "Puente" of course, is not a bridge, but an aqueduct like the rest; it was constructed probably in the reign of Trajan to serve the Roman pleasure resort of Segovia. In the fifteenth century it was restored at the command of Queen Isabella of Spain, and still pours its refreshing burden into the town.



SO MARVELLOUS THAT THE BARBARIANS CALLED IT THE "DEVIL'S BRIDGE"

The aqueduct brings the Rio Frio to Segovia, and its total length is ten miles; but in our restricted use of the word—that portion which crosses the valley supported on tall arches—it is 847 yards long and its highest point 132 feet above the ground. The arches—there are a hundred and nine of them—are built of a grey granite-like stone in two superimposed tiers, without the aid of cement, mortar, or rivets of any kind, and are still in perfect condition although they have been standing thus for eighteen centuries; the piers scarcely seem strong enough to bear the weight of masonry and water combined. In the centre, where the arches span the roadway, is a broad entablature which bore an inscription, now defaced.



THE FAR-STRETCHING LINE OF ARCHES OF THE AQUA CLAUDIA AT ROME

Of all the remains in the neighborhood of Rome few are more impressive than that long line of arches which was once the Aqua Claudia stretching interminably across the Campagna. The Aqua Claudia was built in A.D. 38 to meet the ever-increasing needs of Rome's swelling population, although there were already seven constructed before that date. It drew water from springs in the neighbourhood of Tivoli and entered Rome by what is now the Porta Maggiore; above it was a row of brick arches carrying the supply known as Anio Novus or new River Anio.



LICHENED ARCHES OF THE AQUEDUCT AT SMYRNA

At Smyrna, too, in the Roman province of Asia, the city that vied with Ephesus and Pergamum for pride of place, there still stands an old aqueduct, by no means among the greatest of its class, but perhaps the most pleasing in appearance. For not only is it lichened and covered with creeping things that have rooted in the crannies of its masonry, but where it crosses a river at the bottom of a valley the monotony of its arches is varied in the central span to give a bridge-like effect. And so, wherever we go in the lands that formed the Roman Empire, we find these aqueducts, mute witnesses not only to the power of Rome and to her far-flung rule, not only to the patience and skill of her engineers, but to the cleanliness of a civilisation which kept open spacious baths for rich and poor alike; a cleanliness which with other scorned and discarded legacies from Rome we are only gradually regaining to-day.

were expert water engineers, and both Vitruvius and Frontinus show themselves well acquainted with most of our modern devices. The reason why they so often chose the aqueduct was that building materials, travertine stone, bricks, concrete, cement, and mortar, were all cheap, plentiful, and readily adapted for use. Pipes, on the other hand, of the size necessary for a main supply of water, were expensive and unreliable. Steel they did not possess; cast iron they could not work with facility; bronze was very costly; and lead, although employed for city use, was unsuitable for a continuous line of large bore pipes. So considerations both of economy and expediency drove the Roman engineer to his arched aqueducts; and we may be thankful that it was so, for they are, perhaps, the most beautiful things that the Romans have left us.

Of the nine aqueducts that served Rome at the period of her greatest prosperity in Hadrian's reign, Frontinus gives us full information in his treatise "*De Aquis*." Frontinus, after governing Britain with some distinction, was appointed by Hadrian "*curator aquarum*" (A.D. 97), Chairman of the Metropolitan Water Board in our tongue, and therefore writes from first-hand knowledge. In the early days of Rome, he tells us, people got their water from the Tiber, from wells, from rainwater cisterns, and from the numerous springs, such as the Fountain of the Nymphs and the Fountain of Juturna, which lie at the foot of the Seven Hills, and in the valleys between them. The first aqueduct—"Appia"—was made by the censor, Appius Claudius, in 312 B.C., and drew water from a spring about ten miles south of Rome, still to be seen at the bottom of some stone quarries near the River Anio. Just before it entered the city it was brought across a valley on a series of low arches, but for most of its course it was an underground conduit beneath the road. It discharged its water into a large receiving tank near the present Porta Maggiore, and was thence distributed, as described below, over the town.

While the Appia was constructed like a sewer, the "*Anio Vetus*" (272 B.C.) is an aqueduct, although a low-level one, in the restricted use of the word. Its intake from one of the mountain valleys through which the Anio flows, some forty-three miles from Rome, was skilfully chosen for the purpose of getting ele-

vation, and the contours of the country were cleverly used to maintain elevation. The line followed that of the modern railway to Tivoli, and for the structure solid blocks of stone were used, laid in cement and plastered on the inside with a special sort of concrete in which pottery pounded up into fine fragments was mixed with the mortar. The "Marcia" came next (146 B.C.), the first high-level aqueduct, carrying spring water at an elevation of 195 feet above sea-level. But of rough hewn stone it was nearly fifty-eight miles long, and one of the three most famous of the aqueducts. From Tivoli it passed to Galliciano, being carried on arches across the valleys and by tunnels through the hills until it reached the Via Latina. Sinking there into a conduit beneath the road it was taken again, seven miles from Rome, upon an arched aqueduct, remains of which can be seen now near the Porta Furba, and distributed to three sections of the city. The Marcian springs in the country above Tivoli are still used to supply the mains which an English company laid in 1870, and in ancient times the "Marcius liquor" was regarded as the best of all waters for drinking. Nero, with his usual wilfulness, insisted one day on bathing in the fountain-head; the severe chill that resulted was held as a righteous retribution.

The "Tepula," built in 125 B.C. of concrete and mortar, drew from some slightly warm volcanic springs near Frascati; in 33 B.C. Agrippa made a new aqueduct, the "Julia," drawing from some larger cold springs in the same vicinity, and the two supplies after that date were combined. They flowed together for several miles, and finally entered Rome in two channels, both of them built over the Marcia, at the Porta Tiburtina, discharging into a reservoir near the modern Ministry of Finance. When Aurelian, in A.D. 272, built his hasty wall of defence round Rome the arches of Marcia, Tepula, and Julia were all incorporated in the new structure, and there they can still be seen.

Another famous aqueduct, built in the time of Augustus, was the "Virgo" (19 B.C.), which drew from springs near Salone, about eight miles from Rome. It followed the same line as the other aqueducts, until half a mile from the Porta Maggiore, but there turned northward, and, passing under the Via Salaria, entered Rome near the Pincian Hill, just north of the Piazza di Spagna. "Virgo" was a low-level aqueduct, and still supplies



MAGNIFICENT TRIPLE SPAN OF THE ROMAN AQUEDUCT AT CHERCHEL ON THE ALGERIAN COAST

Wherever Rome colonised we find remains of aqueducts. Serving Caesarea on the Algerian coast, where Juba II, built a lovely capital for the Kingdom of Mauretania given him by the Emperor Augustus, was a splendid aqueduct, still in some parts, as this photograph shows, in a remarkable state of preservation. Built in three superimposed tiers of arches it is the largest Roman work of its kind in Algeria. When the traveller along the main road from Algiers first sees this imposing sight he receives an impression of Roman greatness such as comes to him who first beholds the amphitheatre at El Djem, or the Pont du Gard, all these wonderful monuments being remote from the imperial city of the people whose genius created them.

the ship fountain in the Piazza di Spagna, passing thence behind the Via Nazzareno, and ending at the well known Fontana di Trevi. To Augustus also is due the "Alsietina" (A.D. 2), made for the express purpose of supplying water to the huge circus he constructed under the Janiculum for mimic sea fights. It drew from a lake twenty miles from Rome, and its water was of inferior quality. Lastly, we have the "Claudia" and the "Anio Novus" (A.D. 38), the Romans' highest achievements, which cost together fifty-five million sesterces, some half a million sterling. Drawing from springs near the sources of "Marcia," the "Claudia" was brought on arches across the Campagna, with "Anio Novus" above it, the "Claudia" being built of stone, the "Anio Novus" of brick lined with concrete. On reaching Rome, by the Porta Maggiore, the two waters were mixed and carried on the Neronian Arches, many of which are still standing, to the Caelian.

These nine aqueducts, supplemented by two others, the "Trajana" and the "Alexandria," built after Fontinus' time, probably brought about forty million gallons of water into Rome every day. The poorer folk fetched their supply from the public fountains, the rich had lead pipes, laid at their own expense and stamped with their names, which conveyed the water into the house. One gang of public slaves, first organised by Agrippa, managed the public service; another gang was available for private owners. Taking the population of Rome as about a million, each person had an allowance of forty gallons a day; a large figure, but not improbable considering the waste which their system of a continuous flow involved, and also the immense amount of time the Romans gave to the bath. Bathing was their favourite recreation, and under the empire no less than six huge establishments were built, one of which alone, the Baths of Diocletian, could accommodate more than two thousand bathers at the same time.

So much then for the aqueducts that brought water to Rome. But Rome was only one city, and wherever the Romans went they took with them their aqueducts, their roads, and their sewers. It has been computed that the ruins of at least two hundred Roman aqueducts are still in existence, and a brief tour round the Mediterranean may here, in imagination, be made.

Starting from Italy eastwards we shall find little to detain us in Greece, for in Roman times the days of Greek prosperity were over, and the dwindling cities needed no enlargement of their old supplies. Athens alone maintained something of its former position, and here the conduit that Hadrian made is even to-day in use. But in Asia Minor there are remains in plenty, the most remarkable being at the greater Antioch, at Mitylene and at Metropolis. Antioch, with its pleasure suburb of Daphne, was renowned for its abundant water supply, and the ruins of one aqueduct, the lower part of solid wall surmounted by a line of pillared arches, 200 feet high at the deepest point, can still be seen. Equally impressive is the bridge of the aqueduct that stands about three miles north-west of Mitylene with its massive pillars of grey marble and three superimposed rows of arches. And besides these three places, Pergamum, Laodicea, Tralles, Smyrna, and Aphrodisias all have their examples to show.

But, striking as are these remains amid the squalor of their present surroundings, the Roman aqueducts in North Africa are even more impressive. Near Carthage, for example, is the marvellous line of arches, the Aqueduct of Zaghouan, built by Hadrian, to bring spring water from the mountains of Tunis to the chief town of the province of Africa. They stretch for miles, useless and abandoned, across the plains of Oued-Milian and Manouba, and in the hills under the bare side of Mount Zaghouan there still remains the stone reservoir, built with all the grace of an ancient temple, in which the water was collected. Intact also are the cisterns at the other end of the aqueduct in Carthage, "Muadjel-esh-Shaitan," Cisterns of the Devil, as the Arabs call them—but, while some of these are still used for storing water, others serve as shelters for Arabs and stables for animals.

Readers of Flaubert's "Salammbô" will recall the exciting episode of the perilous swim of Matho and Spendius through the aqueduct to the reservoirs on the night of their adventure in the Temple of Tanit, a triumph of imaginative description, as the period of the story predated by two centuries or more the construction of the great aqueduct whose remains are still to be seen by the visitor to Tunis.

And Carthage is only one example of many. In Roman times North Africa contained dozens of flourishing towns, and in



Photograph by Braun, Paris.

BUILT OF MASSIVE BLOCKS UNSTRENGTHENED BY CEMENT—

Aqueducts, the noblest memorials of Roman architectural genius left to delight and astonish modern eyes, are not due to ignorance of elementary hydraulics on the part of the Romans—namely that water will rise to its own level; rather are they the result of the difficulty and the cost, with the materials available, of laying the simplest pipe-line system, as compared with these stupendous structures of straightforward stone, which rely on gravity and a non-hermetic conduit. Not only are they plentiful round Rome itself, but throughout



—GIANT SPAN OF THE PONT DU GARD, CLOSE TO NÎMES

the whole Roman Empire, Britain excepted; and of them none is better preserved than the Pont du Gard, three magnificent tiers of arches one above the other, 880 feet long and 160 feet high at the highest. The "bridge" was built to carry the waters of the Eure and Airon in Southern France, ultimately destined for the town of Nîmes, across the broad and steep-banked gully of the Gard, and the spot chosen is just above the town of Remoulins.

most cases their water supply had to be brought for distances of twenty miles or more from the hills. The admirable work of French archæologists is gradually revealing the wonders of Timgad, Dougga, Lambessa, and Tebessa, and near all these places the ruins of aqueducts have been found, notably the bridge aqueduct with its two massive, rounded piers at Sbétla, the graceful three-tiered arcade across the valley at Cherchel, and the one squat little arch that spans a lonely ravine near Khamissa.

In passing from Africa to Southern Spain we are still in a land where water is a prime necessity, and once again we find the Roman aqueduct. Tarragona and Merida, in addition to their Roman names, have each a glorious line of ancient arches, and at Segovia is to be found one of the best preserved of all Roman works. The aqueduct there, commonly called "El Puente del Diablo," the Devil's Bridge, though built by Trajan, is still in perfect order, and brings the water of the Rio Frio from the Sierra Guadarrama mountains ten miles away. It is made of rough hewn granite blocks laid without lime or cement, and is 2,700 feet long and 8 feet wide, and the tallest arch is 95 feet high.

Coming into France we find the nearest rival to Segovia in the Pont du Gard, near Nîmes. This aqueduct was probably built by Agrippa, about 18 B.C., and the reservoir into which its water flowed has been discovered in Nîmes itself near the Tour Magne. The Pont du Gard is 900 feet long, 160 feet high, and 10 feet wide at its top storey. There are six arches in the lowest tier, eleven in the second, and thirty-five in the third. The road bridge over the Gard is a mediæval addition. Space forbids more than a mention of the aqueducts at Jouy aux Arches, near Metz, and at Mainz, and we have now been our round of the Roman Empire. On one province only we have not touched, the province of Britain. There, for reasons with which we are familiar, the Romans had no need to construct aqueducts.

THE WONDER CITIES. XIV
SUSA: THE ETERNAL CITY OF THE EAST
BY H. G. SPEARING

SUSA: THE ETERNAL CITY OF THE EAST

BY H. G. SPEARING

Author of "The Childhood of Art"

SOME six or seven thousand years ago a tribe, whose name is still unknown, speaking a language of which we have no definite record, and coming from a region which has not yet been identified, wandered through the mountains with women and children until they came to an extensive plain not far from the head of the Persian Gulf. There they found numerous hillocks rising a few feet above the general level, thus affording good positions of defence against other tribes or wild animals from the surrounding gloomy forests. On some of these hillocks they fixed their homes, and on one especially well-situated mound they built a town and surrounded it with a substantial wall of unbaked bricks. From these humble beginnings arose the city of Susa—the Shushan of the Bible—a city which has had a longer life than any other in the world, for it flourished, with many strange vicissitudes, from about 4000 B.C. until about A.D. 650.

Far older than Rome, already hoary-headed when Babylon was still quite young, contemporary with Egyptian cities that disappeared before the time of Christ, it might well have claimed the title of "Eternal" if some fanatical followers of Mahomet had not illustrated the Christian saying: "Here we have no abiding city," by suddenly putting an end to its existence.

It may seem strange that one can write with confidence about a city which has been dead for nearly thirteen hundred years, but this confidence is due to the results of the modern methods of research which have been applied with such success to the huge mound that grew up on that lowly hillock until it towered some

80 or 90 feet above the plain and formed a fitting site for the fortresses of Cyrus and the Palace of Ahasuerus.

The older methods of research, even in the nineteenth century, were based chiefly on the desire to obtain interesting specimens for collectors of "curios"; sometimes even the keepers of museums, who ought to have known better, would encourage the spoliation of historical sites by ignorant fossickers, paying high prices for untabulated relics which were as useless for throwing light on the past history of those sites as isolated words, torn out of an ancient book, would be for throwing light on the literary achievements of its period.

But now it is generally recognised that the position and surrounding objects of any valuable specimens are just as important as the relics themselves, therefore detailed plans and records are kept and the deposits carefully sifted so that every scrap of evidence may be preserved; for the trained archæologist, like the detective of the novelist, will find important clues in apparently trivial objects. Among those trivial objects the highest place is now generally given to broken bits of pottery—they need not necessarily be broken, but an unbroken vase is rare, and however valuable it might be as a museum specimen, one vase might be like the proverbial swallow.

It is chiefly by the many thousand broken pieces of pottery found in the lowest deposits of the Susa mound that the story has been built up, bit by bit, of these unknown immigrants from an unknown land; something like the reconstruction of the unseen, lame, half-blind camel in "The Arabian Nights." The pottery is wonderfully hard and thin, not much thicker than a couple of postcards, and it rings like porcelain, though it is not so transparent. The forms are simple and graceful; they were produced on a rudimentary potter's wheel, used with a skill that was probably due to the inherited experience of many generations of craftsmen. Nearly all the bowls and vases were elaborately decorated either inside or outside with strange designs, most of which have no similarity with any designs found in other parts of the world, so that we have no clue to the country where these potters learned their art, though we can be fairly sure that they brought it from some centre of civilisation where it had been undergoing a long period of development. For it is now admit-



The Louvre, Paris. From the Dieulafoy Mission. Photo by Giraudon.

THE ARCHERS OF KING DARIUS: ENAMELLED TILES FROM SUSA

Although few specimens of real Elamite art have been found in all those layers of sand and mud that have continuously raised Susa higher and higher above the buried city of the original founders, traces of finely coloured glazes are still visible on the enameled fragments from Darius' Winter Palace at Susa which were discovered by Dieulafoy and are now in the Louvre. The making of enameled tiles for architectural purposes seems to have been a great art among the Elamites, and is still one of the characteristic arts of Persia.

ted that ornamental designs in all countries and in all ages are not the chance product of the craftsman's brain—they have a regular evolution from the simple to the complex, most of the simple designs being evidently based on natural forms of men or animals.

There are other indications that the earliest colonists of Susa were well civilised before they left that unknown parent country, for in their burial ground outside the city walls are found the bronze hatchets of the men, and the mirrors, the needles, and ointment vases of the women; there are also relics of delicate fabrics finely woven on a loom. The human remains in the graves have unfortunately been so crushed by the immense weight of the overlying deposits that have accumulated above them for forty centuries that it is impossible for ethnologists to decide whether they were members of the white, the black, or the yellow races. People became very interested over the finding of Tutankhamen's tomb, although its contents added relatively little to our knowledge of the origins or the development of civilisation; how much more interesting would be the finding of the unknown home country of the colonists of Susa, the earliest artistic potters that have as yet given us an insight into the origins of their craft. There are no traces of inscriptions on any of their relics, so we cannot even guess what language they may have spoken. The community vanished as mysteriously as it arrived; a thick layer of charcoal and ashes being the only evidence of the catastrophe that overwhelmed them.

But the site continued to be occupied either by the survivors or by their supplanters, for fresh layers of unburnt bricks appear above the devastated town, and pottery of a coarser but somewhat similar type is found among these layers. Again and again at various levels are found other layers of charcoal and ashes testifying to the successive calamities that overtook the city, and a striking evidence of the energy of the mixed race that so continually rebuilt it. The long duration of the city may be due to the constant accession of fresh blood it received from surrounding nations, themselves not artistically deficient.

This energy made them very formidable to their neighbours, especially to those in the prosperous new cities that were growing up in the fertile plains of Chaldea. Eannatum, who ruled in the

city of Lagash about five thousand years ago, and set up a monument recording his punitive raid on Susa, describes it as "the mountain that strikes terror." This is the first written mention we have of that already ancient city, but an earlier tradition about it has reached us through that wonderful "Epic of Gilgamesh" (Gilgamesh) the national hero of Chaldea. He is said to have attacked and slain Khumbaba, the King of Susa, shortly after the deluge! But here we enter the land of myth.

Many hundred years after Eannatum's time "Ur of the Chaldees" having acquired considerable power, annexed Susa, together with the surrounding country, called Elam, but in the course of another hundred years, Susa had regained its independence and conquered both Chaldea and Babylon. Art and literature do not seem to have flourished in this "terror-striking mountain." Its inhabitants were too much occupied in that constant vendetta of raids and retaliations that still exhaust the energies of the human race. Their raids extended to an almost incredible distance, even as far as Palestine, for in Genesis xiv., Chedorlaomer, king of Elam, is mentioned as having subdued Sodom and Gomorrah and kept Lot a prisoner until he was rescued by Abraham.

They seem, however, to have had a more peaceful time for a few centuries after their expulsion from Babylon (about four thousand years ago) by the great Hammurabi, who thus restrained them from further "glorious adventures" into the west. They probably benefited also by the irruption of an upland peasant race, the Cassites, who apparently introduced the use of horses, for then for the first time we find the horse mentioned in history. By degrees the Cassites assumed the leading rôle in Elam, and also dominated Babylon. Under their rule the city of Susa must have become extraordinarily rich, for bronze casting flourished exceedingly. One of their kings, Ountash Gal, who reigned a couple of centuries before the Jewish exodus from Egypt, caused a life-sized statue of his queen to be cast by the "cire perdue" process—i.e., modelled on a coating of wax afterwards melted out. As a work of art it is quite good, and as a piece of workmanship it presents the problem: how could they have poured into that six-foot mould the many hundredweight



The Louvre, Paris. From the Dieulafoy Museum.

THE LIONS' FRIEZE FROM THE PALACE OF "THE KING OF KINGS" AT SUSA

Another specimen of the Elamite art of enamelling tiles discovered by Dieulafoy at Susa and now in the Louvre. The Lions' Frieze portrayed here once graced the walls of Darius' Winter Palace at Susa. Many experts esteem the modelling of the lions as considerably finer than the stilted conventional winged lions that delighted the Assyrians. As in Babylon on Nebuchadrezzar's processional way yellow and blue appear to have been the favorite colours of the Elamites. Reds, apparently, were not so commonly used.

of bronze required to fill it? The love of gold seems also to have entered their hearts, for a letter on a clay tablet has been found in Egypt begging the "heretic king," Akhnaton, to send more of that incorruptible but still corrupting metal.

The power of the Cassites would seem to have gradually dwindled until in 1185 B.C. an Elamite king put an end to their rule in Babylon and carried off to Susa that precious monument, the Stele of Hammurabi, inscribed with the code of laws compiled by him, an invaluable document for historians and Bible students. It is now in the Louvre, but a good facsimile of it is to be seen in the British Museum (see illustration facing page 312).

Comparatively few specimens of real Elamite art have been found in all those layers of sand and mud that continually raised Susa higher and higher above the buried city of the original founders. Though stone was plentiful and accessible, the inhabitants copied the building system of stoneless Babylonia. They used sun-dried bricks even for their temples, and did not ornament the walls with sculpture as the Assyrians did.

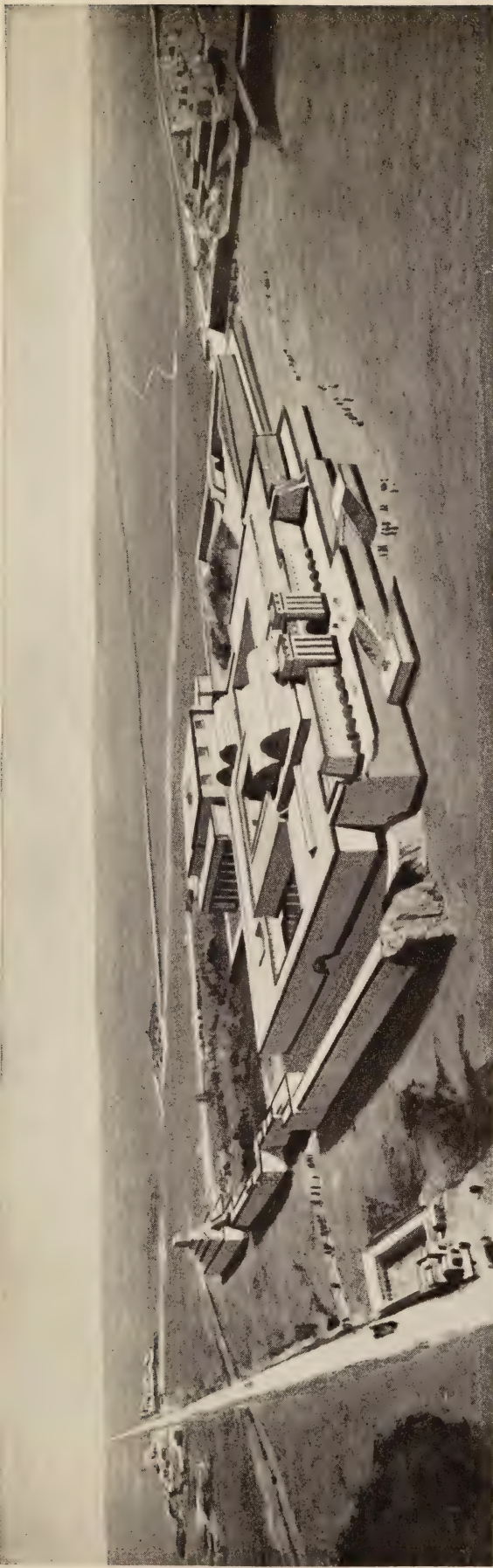
The artistic tribe that founded Susa had probably become submerged by a branch of that energetic and materialistic Semitic race that has at various times in the world's history poured out from Arabia like a lava flow, temporarily destroying the districts it flowed over, but ultimately often benefiting them by rendering them more fertile.

Perhaps that is the reason why the deposits of the middle age of Susa have yielded so few treasures to the explorer's spade, and why most of those treasures are the products of foreign cities raided by the Elamites. One large sandstone monument was taken by them from some city, probably Akkad, in Chaldea. It must have been especially interesting to them because it commemorates a raid made against Susa fourteen hundred years previously by the redoubtable Semitic ruler of Akkad, Naram Sin. I fancy that a purely Semitic people would have "broken down the carved work thereof," and hewn it in pieces, but the Elamites preserved this memorial of their own defeat and kept it in such good condition that, in spite of its great age and of all its rough adventures and wanderings, it is now one of the best low-relief specimens of Babylonian art in the Louvre Museum.

Two large terra-cotta lions made about three thousand years ago to guard the entrance to a temple are a remarkable example of local art. They are much better than the larger but more stilted and conventional winged lions that pleased the Assyrians of a much later period and inspired in still later times the sculptors of Susa to carve those great mythical monsters in high relief at the entrance of the palace of their Persian rulers. Traces of finely coloured glazing are still visible on the blocks of which they are composed. The art of making enamelled tiles for architectural purposes seems to be in the blood of the Elamite population, for a specimen was found in the lowest deposits of Susa, and it is still one of the characteristic arts of Persia.

When further excavations have been made in these mounds sufficient relics may perhaps be found to fill up the great gaps in the history of Susa. It must have been a fairly flourishing city, for enormous amounts of building materials were carried up into it during those apparently uneventful centuries, so that the hills were raised to a height of 60 or 70 feet above the plain. Mention is often made in Assyrian and Babylonian records of the doings of the kings of Elam, and they seem to have been powerful enough occasionally to dominate Babylonia or to assist it in its constant struggles with Assyria. In the hope of neutralising such assistance Sennacherib constructed a fleet on the Euphrates and sent it across the head of the Persian Gulf to ravage Elam, but at the same time the Elamites raided Mesopotamia and took Sennacherib's son prisoner.

At last, in 640 B.C., Ashurbanipal, better known as Sardanapalus, who had completed the forging of the Assyrian nation into a vast military machine, decided to utilise it in suppressing Susa. His successes are recorded in the low reliefs made for his palace at Nineveh and now ranged on the walls of the British Museum. The Assyrian character is well shown by those which depict him feasting with his queen in a garden where the head of the King of Elam dangles before them on one of the trees. In his inscriptions he boasts of the ruthless slaughter and devastation he wrought in Susa, but that sort of empire is not generally very durable; thirty years later Nineveh—the “nouveau riche”—was laid waste and desolate for ever, while ancient Susa after a brief interval recovered its prosperity and under the rule of Persian



PALACE OF DARIUS AS IT WAS WHEN ESTHER LIVED AND LOVED, AND AS IT IS TO-DAY

Susa, the Shushan of the Bible, was the old capital of Elam and is marked on the map on another page. There Darius I. built himself the great Winter Palace or Apadana where, we are told, the fair Esther once charmed the heart of Artaxerxes I. or Xerxes I., with whichever the Biblical Ahasuerus is to be identified. From the foundations seen covering plan-like the summit of the mound M. Pillet has with great skill elaborated an imaginative bird's-eye view, shown in the top picture, of the gorgeous palace of Darius I. In the foreground is the southern entrance; to the right, facing towards the royal town, is yet another. Three open courts are visible.



The Louvre, Paris. Photo by Giraudon.

COLUMN FROM THE WINTER PALACE OF THE PERSIAN KINGS AT SUSA

Albeit the most interesting of the remains which Susa has to offer us are probably the wonderful potsherds of its earliest inhabitants, most imposing undoubtedly are the ruins of the Apadana or Palace of Darius I. and Artaxerxes Mnemon. To outward view a shapeless mound like those of Assyria and Babylonia, it has nevertheless yielded to the excavations of Dieulafoy and others such gems of workmanship as this head of a column with its fluted shaft and twofold bulls' head capital.

Cyrus attained still greater wealth and splendour than ever before.

It is not quite clear why Cyrus should have chosen Susa as a site for his fortress after it had been so cruelly devastated by the Assyrians. Perhaps it was because of its position on the route from Persia to Mesopotamia and Asia Minor where he had recently obtained vast treasures by his victories over Babylon and Cræsus, King of Lydia. Possibly it was also the chief *dépôt* of the north and south trade route between the Persian Gulf and the teeming regions round about the Caspian Sea. But in those days people were only dimly conscious of the power of commerce. Those who aimed at supremacy over their fellow men sought to gain it by the sword rather than by the more insidious force of commercial intrigues and manœuvres. The sword, however, had for many centuries become more and more dependent on gold for its motive power, and the innovation of stamping gold into small and easily recognisable pieces rendered this motive power more transferable, thus enabling ambitious men to make more extensive and permanent conquests. The gold had to be stored in safe and convenient places; it was probably this consideration that impelled Cyrus to make Susa one of the strongest and richest storehouses in the then known world.

His encircling wall may be traced out at a level some 70 feet higher than the encircling wall of the unknown "proto-Elamites" on the virgin hillock. His wall is substantial, but of very simple design; the scientific plan of fortification which Dieulafoy in 1890 described in his "*Acropole de Suse*" has not been confirmed by more thorough investigation. Explorers were then and are even now too often disposed to exaggerate the strangeness of their discoveries, just as newspaper reporters are disposed to lay unreasonable stress on the money value of objects found by these discoverers.

This castle of Susa is often mentioned in the Bible. The words actually used are "Shushan the Palace," but a note shows that it was also a castle. Cyrus must certainly have used it as a palace, but probably only in the winter when its climate is quite pleasant. In summer it is so hot that even scorpions were said to die if they attempted to cross a street during the noonday glare. Cyrus is reputed by Herodotus to have esteemed so highly

the water of its river Choaspes that whenever he travelled he had cartloads of it carried in silver flagons for his use. He also took the precaution to have it boiled.

A more famous palace was the one erected by order of Darius when Susa was the centre of his vast empire stretching from the Indus to the Danube and the Nile.

It was probably in this palace that the great council was held by Xerxes to decide upon the invasion of Greece in order to crush that impudent little nation whose love of liberty was so incomprehensible to the Asiatic mind. In this palace, too, if we accept the identification of Ahasuerus as Xerxes, was laid the scene of the story of Esther. The details given there of the gorgeousness of the decorations have received indirect confirmation by the discoveries of Dieulafoy and others. The confirmation is indirect because it was found that the palace of Darius had been totally destroyed by fire. The extensive remains they succeeded in collecting were those of a palace built by Xerxes' son. The material was rich and the general impression must have been imposing, but it was a mongrel form of art—the uninspired elaboration by highly-paid craftsmen of the mean ideals of wealthy men who mistake luxury for beauty.

It foreshadows the early downfall of the once simple-minded Persian race whose chief ambition used to be to “ride well, shoot straight, and speak the truth.” In less than a hundred and fifty years their empire was overthrown and a fresh adventurer, Alexander, pursuing the same ignoble ends of greed and domination, in his case tempered with a desire to extend Hellenic culture, drove their incapable emperor to exile and assassination in the remote province of Bactria.

Immense treasures were found by Alexander at Susa, if substances like gold and silver and purple dyes which minister only to luxury and ostentation can truly be called treasures. It is said that twenty thousand mules and ten thousand camels were required to transport that part of the booty which Alexander decided to take away. Yet on the break-up of his empire a few years later immense sums were still found at Susa by one of the numerous adventurers who scrambled for his inheritance. Thus again began the vicious circle. Jealousy and greed split up the powers that had organised and controlled so many varied and



After a drawing in "*Le Palais de Darius Ier à Suse*," by M. L. Pillet.

KING DARIUS WITH HIS COURTIER IN THE PRIVATE COURT OF HIS PALACE

This reconstruction by M. Pillet of a court in the temple of Darius at Susa is one that may be offered with greater confidence than many, being based on excellent evidence. The ground plan and column bases are extant; enough of the glazed bricks remain to show that they formed a frieze similar to the one illustrated in colour on another page; of the column capitals we possess examples; while the timber roofing of the loggia is illustrated on the façade of a tomb at Persepolis where exactly the same architectural styles prevailed. The court is the left hand "well" of the bird's-eye view shown elsewhere.



*The Louvre, Paris. From the Dieulafoy Mission.
Photo by Giraudon.*

BASE OF A PILLAR FROM SUSA

From the Apadana, besides the column capital illustrated on another page, comes also this massive base belonging to a similar column.

antagonistic nations. Then out of the chaos emerged a simple nomad folk, the Parthians, whose history is resumed in the following article, destined in the course of time to rule the western Asiatic world and to defy and defeat the fearful power of Rome. The history of Susā again becomes almost a blank, but it must have retained some of its former importance for in A.D. 100 bronze coins were minted there and a new palace was built. Then the Roman Emperor Trajan avenged the death of Crassus and the defeat of Mark Antony by driving the Parthian king from Ctesiphon to Susā, for by this time the Parthians had become luxurious and their kings used golden thrones, tempting their enemies to overthrow them. Thus still went on the eternal see-saw of raids and retaliations. In A.D. 216 the Parthians defeated the Romans and made them pay two millions sterling.

Under the Parthians and their successors, the Sassanians, Susā seems to have lost its importance altogether, although it remained a flourishing city. It is possible further excavations may reveal the part it played in helping the Sassanians to defeat in A.D. 258 the Roman Emperor Valerian, but perhaps it had little share in these struggles. Although its own history had been a tempestuous one, it may in its old age have temporarily afforded an example for those cynics who say "happy are the people who have no history."

THE ROYAL PALACES. III
CHOSROES' PALACE AT CTESIPHON
BY THE REV. W. EWING, M.C., D.D.

CHOSROES' PALACE AT CTESIPHON

BY THE REV. W. EWING, M.C., D.D.

Of the Palestine Exploration Fund, Author of "Arab and Druze at Home"

IN the far-spreading plains of Irak little that is picturesque or beautiful arrests the eye. Itself the gift of the mighty rivers, but for Euphrates and Tigris the country would be unrelieved desert. The greenery of spring swiftly withers, and the land is baked hard and brown by the suns of summer. The surface is broken by canals, fragments of earthworks, remains of old irrigation systems, and great marshes. Many are the mounds that cover ruined cities of the ancient world—archæological treasures.

About twenty-five miles down stream from Bagdad, on the eastern bank of the winding Tigris, stands the famous Arch of Ctesiphon, the surviving residence of the renowned White Palace of Chosroes I. The vaulted roof of the great hall of audience looks in the distance like a gigantic arch. I first saw it on an evening in March, 1917, during the thrilling pursuit of the Turks to Bagdad. A mirage caused an optical illusion, lifting high the solid block of masonry so that it dominated the landscape. It is by far the most striking remnant of antiquity in all that region.

The Parthians founded Ctesiphon. In early years it shares the obscurity that shrouds so much of Parthian history. That people's home lay in the uplands south-east of the Caspian Sea. They acquiesced in the conquests of Cyrus and Alexander. About 250 B.C. they rose against the Seleucid Empire and, led by one Arsaces, who challenged and slew the Greek satrap, established their independence. Their dominion gradually widened

until, under Mithridates I., distinguished alike as soldier and statesman, a great empire was built up which lasted 400 years, and proved a formidable rival to Rome in Asia. In luxury, extravagance, and display the Parthian court resembled that of the Achæmenians. In other respects it fell far short. Little worthy the name of art or letters has survived. Our knowledge of the Parthians is drawn mainly from the records of their foes.

The court spent the summer in the north. With the approach of winter the splendid household of the kings, with their glittering hosts attendant, moved to the sunny south. Their pavilions were spread in the plain of Ctesiphon, east of the Tigris, over against Seleucia, a city built by Seleucus on the western bank, which had succeeded to the honours of Babylon. Gradually the village of Ctesiphon swelled into a great city, which became the capital of the Parthian Empire.

In A.D. 16 Artabanus became king. The Roman Vitellius, by intrigue and treachery, compassed his flight, and set up Tirdates in his stead. The new king was acclaimed by a vast multitude; but of him, with his youth and soft Roman breeding, his subjects soon grew weary, and the grim Artabanus, wearing the wretched garb of his exile, was welcomed back to his royal city.

The Emperor Trajan brought ships on rollers across country from the Euphrates, and in them crossed the Tigris against Ctesiphon. Osroes, the successor of Pacorus fled. Trajan easily took the city. His spoil included the king's golden throne. He constituted Lower Mesopotamia a province, and on the plain of Ctesiphon, amid great pomp, set over it a creature of his own, with the style of "King of Parthia," the imperial hand placing the diadem upon his brow. But the emperor's plans miscarried. In the spring of A.D. 117 Osroes returned, expelled the puppet king, and re-established his own authority.

Not till A.D. 165 was the prestige of Roman arms restored. Seleucia received the Roman generals as friends. Ctesiphon they attacked as enemies. Yet both were overwhelmed by the same fate. Cassius wrought havoc with the splendid buildings of Ctesiphon, plundered the temples, sought out the treasures, and departed with a rich booty. From this blow, fatal to Seleucia, Ctesiphon soon recovered. In A.D. 198 Severus, in spite of stout

resistance, captured the city. The males were slaughtered, 100,000 women and children were taken captive. Much precious metal, and the chief ornaments of the palace, were carried away. By an act of blackest treachery Caracalla inflicted the last spasm of anguish endured by Parthian Ctesiphon. The soldiers, betrayed and unarmed, were, with the rest, slaughtered like sheep and the city was given over to pandemonium. Mani, founder of the Manichæan sect, is said to have been born at Ecbatana (A.D. 215), and educated at Ctesiphon, where also he was crucified.

In A.D. 226 a new chapter in history begins; the Persian Ardashir overthrew the Parthians, made Ctesiphon his residence, and founded the powerful Sassanid dynasty. He rebuilt Seleucia and erected other suburbs, the group forming al-Madain, "the cities" of the Arabs.

Odenathus, prince of Palmyra, besieged but did not take Ctesiphon in A.D. 261. It was taken and sacked by the Emperor Carus (A.D. 283), who forthwith died mysteriously in his tent during a thunderstorm. Strongly fortified as it was by river, walls, and morasses, Julian attacked the city in A.D. 363. Diverting the course of a canal, he brought boats from the Euphrates and crossed the Tigris. The Persians, defeated in the plain, fled to the shelter of their walls, leaving to the victor a great spoil, including precious metals, splendid arms and trappings, beds and tables of massive silver. Judging the city impregnable, Julian passed on, and soon died of wounds. In A.D. 420 a council met in Ctesiphon under the Archbishop of Seleucia, which received the Nicene faith and the canons approved by the churches in the West. And in A.D. 531 there came to the throne the greatest, perhaps, of all the Sassanian princes, Chosroes I., who built the White Palace. His grandson Chosroes II. is said to have taken the true cross from Jerusalem to Ctesiphon. His son returned it to Heraclius, who restored it to Jerusalem.

The rise and progress of Islam brought a new and ruthless enemy to the gates of Ctesiphon. In A.D. 637, the year after his victory at Kadisiyeh, Saad moved against the city. Panic-stricken at the Moslems' sudden crossing of the river, the defenders fled. An almost incredible booty fell to the conqueror. The great hall of the White Palace was consecrated as a place of prayer. Here Saad gave thanks, ascribing his victory to the

Lord of Hosts. Here the Friday service of Islam was first celebrated in the land of Persia.

Finding Ctesiphon unhealthy, the Arabs migrated to the new cities of Kufa, Bagdad, and Basra. From the deserted towns materials were taken for the building of Bagdad. Scattered heaps of rubbish alone mark the sites of Seleucia and the other suburbs. But the solid brickwork of Chosroes I., hard as iron, withstood the pickaxes of al-Mansûr, and the noble arch remains. Within sight of it Townshend fought the battle of November, 1915, securing his retreat against overwhelming odds.

Of the beauty and splendour of Ctesiphon in its regal days there is ample evidence. Girt by a loop of the great river, it stood like an emerald in a chain of sapphires. Rich soil and plentiful water made easy the creation of "paradises," shady gardens with fountains and flowers, and fruitful orchards. Not far off were royal hunting-seats embowered in greenery, and parks where lions, wild boars, "bears of remarkable fierceness," and other animals were kept for princely sport.

The palace, temples, and mansions of the nobility were of great magnificence. Wealth was lavished upon their adornment and furnishing. Here was the very home of luxury and display. Here also was the centre of imperial treasuries. Conqueror after conqueror had been enriched by her spoils; yet all were insignificant compared with the prodigious booty taken by Saad. It included vast stores of silver and gold, costly robes, precious stones, and jewelled arms; musk, camphor, amber, and delicious perfumes; a horse of gold with emerald teeth, neck set with rubies, saddle of silver, and trappings of gold; also a camel of silver with foal of gold. Chosroes' armoury contained helmet, breast-plate, greaves, and arm-pieces, all of solid gold adorned with pearls, six "cuirasses of Solomon," and ten costly scimitars. But the chief prize was surely the royal banqueting carpet, seventy cubits long and sixty broad, representing a garden, with ground wrought in gold, walks in silver, meadows of emerald, rivulets of pearls, trees, fruit and flowers of sparkling diamonds and other precious stones. When the works of art and the fifth part of the entire booty had been set apart for the Caliph, so enormous was the remainder that the share falling to each of Saad's 60,000 soldiers was about £312.



WHERE PERSIAN PRINCES FEASTED AND GAVE AUDIENCE: THE ARCH OF CTESIPHON

As recently as 1864, when this photograph was taken, the whole of the right-hand façade of the Arch of Ctesiphon was still standing. To-day it has disappeared, and with it large portions of the vault, as may be seen by consulting the other photograph on this page. The mighty building was erected by Chosroes, a Sassanid monarch who came to the throne in A.D. 531, towards the end of the great dynasty which was founded by Ardashir in the third century A.D., and revived the glories of the Persian Empire.



Photo from the Rev. Dr. Ewing.

VAULT OF THE WHITE PALACE AT CTESIPHON, SCENE OF MANY BITTER FIGHTS

The "Arch of Ctesiphon" is actually all that remains of the vast vaulted audience chamber of the White Palace, the triumph of Chosroes the Great. The whole building was once 150 feet high; the great hall is 85, and though a marble portico has disappeared, the front was always open to the sky—indeed, with its blue-painted, star-spangled roof it must have seemed like the vault of heaven itself. In the foreground here are troops of the Mesopotamian Expeditionary Force, heroes of the last of all the battles it has seen.

The White Palace of Chosroes I. was the central glory of Ctesiphon, and the most splendid example of Sassanian architecture. A noble structure, with portico of twelve lofty pillars of marble, its height was 150 feet, its breadth 180 feet, and its length 450 feet. The spacious central hall, open in front, was 115 feet long and 85 feet high. Stars of gold gleamed on the blue vaulted roof, figuring the motions of the planets among the signs of the zodiac. A foiling of semicircles adorned the front of the great arch. Here the king, sitting on a throne of gold, heard causes and dispensed justice. Vaulted chambers that stood on either side and behind have disappeared. Part of the main façade remains, facing eastward, with its striking ornamentation of doorways, double-arched recesses, pilasters, and string courses.

Recall for a moment the beauties of the past, Parthian and Persian pomp and pageantry, the luxury and wealth that roused the cupidity of kings and emperors, the mighty ramparts, the changing scenes of victory and defeat; then look upon this grey ruin, rising wearily over an empty wilderness, and a sense of the transiency of human splendour overwhelms the spirit. The old river sweeping past in all its pristine strength, the wind sighing among the reeds, seem to murmur a dirge over the long-vanished glories of Ctesiphon.

THE MASTER BUILDERS. VI
ZIMBABWE: MYSTERY OF
MASHONALAND

By DAVID POLLOCK

ZIMBABWE: MYSTERY OF MASHONALAND

BY DAVID POLLOCK

Illustrated with photographs supplied by the British South Africa Company

INNUMERABLE evidences tell us that the builders of the Great Zimbabwe in Rhodesia occupied a densely peopled country. They operated a vast system of irrigation for agriculture by means of channels carried for miles along the hillsides. They were keen gold-miners. Above all, they had a notable skill in architecture of their own primitive type. The Great Zimbabwe was a monarch's capital, a trading station with the outer world—a fortress—perhaps even a temple.

The present occupiers of the country, the Makalanga, are still on the lowly plane of African barbarism. Zimbabwe's stately walls, the tribesman's thatched hut of "wattle and daub," which can only be entered by stooping—it is difficult to believe that structures so far apart in the architectural scale could emanate from the same racial mind. Probably this incongruity decided the earlier explorers to ignore the Makalanga as a link in historic continuity, and to seek the origin and purpose of these buildings in an antiquity far more remote than has been justified by later research.

The romantic conception of Southern Rhodesia as the fabled land of Ophir, that its gold-mines worked first by Sabæo-Arabs, later by the Phœnicians, were the source from which the Courts of David and Solomon drew precious metals and costly merchandise, was once upheld in all sincerity; and the late Mr. J. T. Bent, in his book, "The Ruined Cities of Mashonaland" (1892), argues skilfully in favour of a Sabæan origin. Further examination of the Zimbabwe and its contents has, however, established a virtual

certainly that the differences between them and the methods of the present inhabitants, however great, are, at any rate, less than the difficulties which would have to be surmounted if we accepted Mr. Bent's theory of a Biblical date and origin. But Mr. Bent is almost certainly on firm ground when he places the trading Arab of the east coast as the connecting link between the gold and ivory of ancient Rhodesia and the markets of the outer world.

Before the colonial expansion of the Portuguese, and centuries before Moselikatze unloosed his destroying impis, we can imagine a great African tribal state of which the Makalanga are the shrunken remnant—ruled by its hereditary Monomotapa, and stretching from the Zimbabwe to the Zambezi. It is not impossible that the Monomotapa farmed out the exploitation of the mines to Arabs, or that at least the native tribesmen worked under the superintendence of the keener-witted race who were fully alive to the barter value of the precious metal which could be realised through the trading agencies of the Arab merchants established at Sofala and at other coast outlets tapping the wealth of the interior.

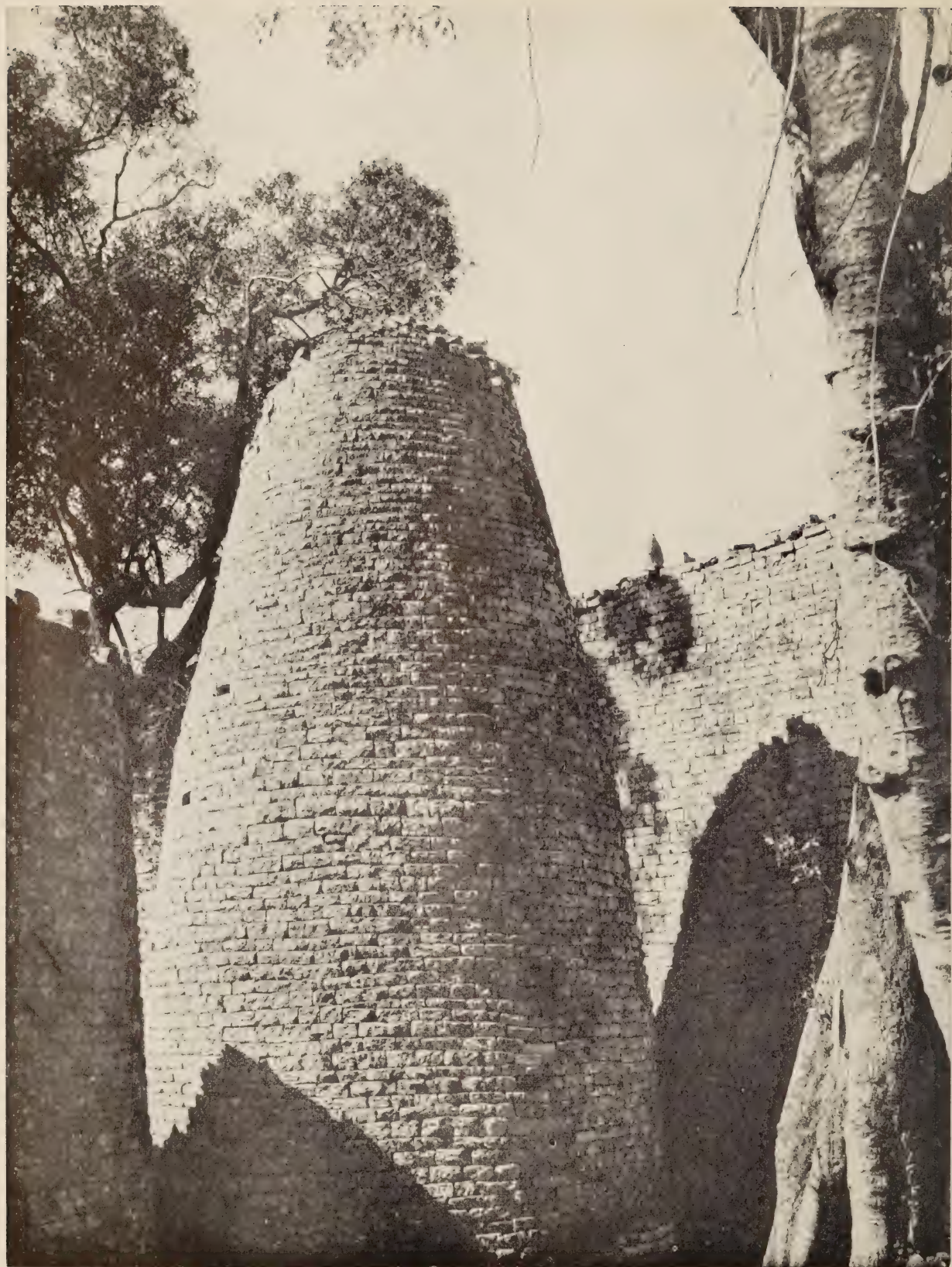
At the height of its prosperity the realm of the Monomotapa appears to have been a model of effort, output, and comparative civilisation unapproached by African natives south of the Zambezi from that day to this. The causes of its downfall and obliteration must be found in the unceasing warfare of the tribes which made the African interior a chaos until the white man imposed his peace. The only wonder is that in this troubled region a state of security ever lasted long enough to permit the erection of such massive works of man's hands as those of which we marvel at the mighty ruins in Southern Rhodesia to-day.

For a generation before Rhodes' "Pioneers" took possession of Mashonaland—the Makalanga country—in 1890, the old hunters and ivory traders of the interior had brought back tales of "ruined cities" and disused gold-workings on the hazy confines of Portuguese East Africa. Mere discovery of the Great Zimbabwe, the capital-stronghold of the Monomotapa, had been made by Adam Renders in 1868. Three years later some exploration of the ruins had been carried out by the famous traveller, Karl Mauch. But the origin and purpose of these strange



NORTH ENTRANCE TO THE ZIMBABWE TEMPLE

On the slope of a hill beneath the great Acropolis is an elliptical enclosure, probably a temple, of which this is the north entrance viewed from outside. Notice its narrowness, its oblique inclination, and the curious rounding-off of the walls; one of the features of Zimbabwe architecture is a peculiar fondness for curves.



MYSTERIOUS CONICAL TOWER BEFORE THE COURT OF ZIMBABWE'S TEMPLE

After following the narrow path from the north entrance, and passing between two protecting buttresses, the explorer will pause in wonder before a conical tower standing beside the passage to the sacred enclosure, and overtopping the wall at this point. It is solid, built of dressed blocks in beautifully symmetrical courses, and is at present 32 feet in height, having apparently lost not more than 3 feet; at its side is a much smaller tower. They seem to have been religious in purpose and phallic in nature.



SHADED BY ANCIENT TREES: NORTH-WESTERN ENTRANCE TO THE TEMPLE

The "northern" entrance is actually rather north-east, but it is so slanted in the thickness of the walls as to face due north, a fact which may be of astronomical significance. But besides this entrance there are two others farther to the west, of which this is one. It pierces a section of the wall which is without decoration and of decidedly inferior workmanship, though whether this argues a later period of construction is uncertain; perhaps the work only had to be completed hurriedly.



INTRICATE LABYRINTH OF RUINS WITHIN THE WALLS OF THE TEMPLE

Within the temple-area, 290 feet long, the walls, courts, stairs, and passages are of bewildering complexity and form a veritable maze. At one point is what appears to have been an altar, and elsewhere are standing monoliths—"bætyls" or sacred pillars, perhaps. And everywhere the discoveries—phallic emblems and the like—go to prove the religious character of the building. Some have inferred a connexion with Sabæa (or Southern Arabia); but the civilisation may well have been a native product.



CHEVRON PATTERN ON THE WALLS OF THE OVAL TEMPLE AT ZIMBABWE

A feature common to all the many ruins of the Zimbabwe district is the frieze-like pattern with which the architects were prone to decorate their walls; varying in detail, its principle is the same—a few outer courses of the brick-like granite blocks towards the top are set at an angle instead of horizontally, thus forming a zig-zag design.

evidences of the past remained baffling and mysterious. The country was virtually closed. Under Lobengula's stern veto wandering prospectors were conducted to the confines of the country and warned that a second visit might be their last.

Notwithstanding this veto the Chartered Company's Pioneer-column marched in. Though Bulawayo was still a forbidden city, police-posts and magistracies were established along the main routes. Prospectors and traders spread north to the Zambezi and east to the Portuguese border in quest of barter and gold.

My first view of the fabled Zimbabwe came in these days. The occasion of our journey was prosaic—we needed grass for our oxen, worn by a trek of 500 miles from the south. Rain towards the east was reported. We passed along the dim track through the night. Daybreak showed the grass green and wet, and the cattle snatching at it ravenously as they strained at the yoke.

We looked down on a gentle valley ending precipitously where the country broke away to the low veld and the far distant sea. The valley was bastioned on either side by granite kopjes. On that to our left we could see above the ground-mist the velvety thatch of native huts. At its foot was a confused mass of crumbling foundations of what had been dwellings long ago. Nearer the bare granite hill on our right stood what seemed—strangely—an old college garden, with high grey walls girdling tall trees. The morning was still, and the sun not yet risen. On the hill the village slept. Our heaving oxen stood waiting to be unyoked. We heard no sound but the screaming of a jay and the coo of a green pigeon in the tree-tops of the Zimbabwe—ruined emblem of an empire resting in the silence of how many vanished years?

The Zimbabwe ruins may be grouped in three sections. The Great Enclosure itself, the ruined dwellings in the open, and, beyond, the flanking kopje which has been named the "Acropolis." The actual Zimbabwe, or capitol, is a great enclosure within double walls roughly circular like all native African buildings. It is over 800 feet in circumference, with a maximum length of 292 feet, and a maximum breadth of 220 feet. In places the walls stand over 30 feet and in width 14 feet, tapering downwards to the base. Large coping stones to protect the top

of the wall are still in position, though some have fallen. Between the walls is a narrow passage. The construction is a marvel of accurate and painstaking workmanship. Blocks of granite resembling small bricks quarried from the adjacent kopje form the material. The symmetrical construction is very impressive and pleasing. Although not a morsel of mortar has been used, the small granite "bricks," roughly dressed, have been fitted to each other with minute skill. The exquisite structural technique which has raised such an enduring monument is something which the adjacent villagers make no attempt to imitate. Yet the "chevron" decoration along parts of the upper walling may be traced in the clay pots which are in use at every Makalanga kraal.

A notable feature within the enclosure is a large conical tower built in the solid of granite bricks. The "Sabæan" school of excavators interpreted this as an obvious symbol of phallic worship; but it may also have been a watch-tower or even a "coign of vantage" from which to supervise the bustling activities of the Monomotapa's "Great Place." The floor of the enclosure, originally a thick pavement of cement, was covered with the ruins of small buildings half buried in undergrowth and entangled with roots of trees.

The fortification of the flanking kopje has been carried out with the same minute care as was bestowed on the walls of the great enclosure. Not a chink between two rocks that is not walled up closely. Although "bonding" a wall in the European manner was unknown to these bygone craftsmen, a substitute was found in long, thin shafts of granite which, in the walling of the wider chasms, are set upright at intervals to give the required strength and cohesion.

Lodged among the crevices and on the ledges of this ancient fortress the present villagers seem to have as little relation to the original builders of Zimbabwe as jackdaws to the old church towers in which they build their nests.

From these massive ruins the mind's eye readily constructs the stronghold of the masters of the gold mines in its hinterland, and the depot from which the convoys in charge of the precious metal would set out on their journeys to the coast.

During my stay at Zimbabwe, I had the good fortune to share in a practical test which left little doubt as to the purpose



WESTERN ENTRANCE TO THE TEMPLE

The westernmost of the three entrances to the Elliptical Temple has been so carefully restored that it almost presents its original appearance. On the inside (the view given here) two low buttresses, one on either side, project inwards and guard the gateway. About the whole of these buildings there is something decidedly reminiscent of the Aran Ports.



TWISTING STEPS TO ZIMBABWE'S FORT

On the granite hill above the temple stands the Acropolis—older and sturdier of the two structures. It is approached by a tortuous flight of steps built up the face of the precipice and through a cleft between two mighty boulders at the top, where every point susceptible of attack is elaborately fortified.



BETWEEN THE DOUBLE WALLS OF THE TEMPLE: A TRIUMPH OF ZIMBABWE'S ARCHITECTS

Immediately within the north gate of the Elliptical Temple a narrow path turns sharply to the left, and runs round a third of the circumference between an outer and an inner wall to the great sacred enclosure with its altar in the south-east quarter; indeed at one point in this section there is a third wall making a triple fortification. The figure in the centre will show the height of the outer wall—about 35 feet at this point; and the broken inner wall on the right shows the style of masonry, regularly laid on the outside but somewhat irregularly in the middle.

underlying this strange outpost of a lost enterprise. A solitary white man, a gold prospector, had arrived at the ruins the day before us, and was already at work diverting the flow of the spring, or "fountain" which bubbled up in the sward at a stone's throw from the great enclosure. His theory aimed at reconstructing the daily incident of carrying water from the spring to supply the guardians of treasure in Zimbabwe. Women would bring their pitchers on their heads to the water. If gold were a commodity they would wear ornaments of the precious metal. Loitering there articles would be dropped. The rain, too, following the trend of the ground, would carry the flotsam of the "great place" to the lower level, and bring it to rest in the basin in which the spring rose. The test consisted quite simply in turning the stream to one side, and using its waters as they rushed through a sluice-box to wash away shovelled-in earth, leaving heavy objects caught on the strips of wood—riffles—nailed across the floor of the box. After long and careful preparation our first "wash" was put through. I remember the tension of those minutes. Would it be a blank?

As soon as the rushing, mudding mass of earth was swept through the sluice, the water from our reservoir was dammed back—and there was no mistake! Gold, and not raw gold, but the precious metal in forms fashioned for men's use! There were gold beads bored for stringing, ivory beads, and small fragments of beaten-out gold in the form of thin plates. Surely these last, in some of which small gold nails were still stuck, could only have been used in decoration in a fairly advanced stage of domestic art. They might have formed the ornamentation of choice cabinets, or even the sheathing of a shrine. At any rate, they were the precious index to a wealthy society in which gold had been put to a lavish and habitual use.

THE WONDER CITIES. XV
ATHENS IN THE DAYS OF HER GLORY
BY J. L. MYRES, M.A., D.Sc., F.B.A.

ATHENS IN THE DAYS OF HER GLORY

BY J. L. MYRES, M.A., D.Sc., F.B.A.

Wykeham Professor of Ancient History, Oxford; author of "The Dawn of History," etc.

IN arranging the pictorial diagrams to accompany Professor Myres's brilliant survey of Ancient Athens, no effort has been made to illustrate in any considerable detail the Parthenon or the Theatre of Dionysos, as it has been found desirable to deal with each of these in other sections of our work, the Parthenon coming up under "The Temples of the Gods" for considerably more detailed treatment than would be possible in this chapter dealing with Athens as a whole, while the Theatre of Dionysos forms in its description and illustration an important feature of Professor E. A. Gardner's contribution on the Ancient Theatre in our section on "Ancient Arts and Crafts."

FEW ancient cities appeal to the modern world in so many different ways as Athens; and fewer still retain, even in their modern motley of old and new buildings, so much of ancient feature and outline.

Rome and Jerusalem have been more continuously inhabited—Jerusalem with smaller alteration of plan and outer aspect, but with almost complete effacement or submergence of older monuments in its disastrous sequence of sieges and captures; Rome, more completely successful architecturally as well as constitutionally in accumulating novelties without sacrifice of the obsolete, but transfigured utterly, more than once, by the shifting of its soul, its seat of will and intelligence, from the Palatine to the Lateran, from Lateran to Vatican across the river, and back from the Vatican to the Quirinal Hill.

Athens, as old as Jerusalem, as richly endowed by its natural situation as Rome, as profoundly significant as either of these cities in human history, more than compensates for the long de-

cadence of its Byzantine history, and for the creeping death which paralysed it under Turkish rule, by the grave aloofness of its monuments from the trivialities of a busy modern capital, and by their coherence—fragmentary as they are—with each other still, and with the site and landscape which they ennoble.

The natural surroundings of Athens are themselves exceptional. The Saronic Gulf of the Ægean Sea, and its counterpart the Corinthian Gulf, which so nearly meets it at the Isthmus, divide the homeland of the Greeks into a northern and a southern half of nearly equal extent, and carry seaboard conditions into the very heart of the peninsula. A little north of this, the narrower channel which separates the island of Eubœa from the mainland has always been an avenue of intercourse between the archipelago and central Greece. Both gulfs were the earliest areas to be explored by the nascent civilisation of the Cycladic islands, twin-sister of that of prehistoric Crete, and better situated for such continental enterprises. The mountainous promontory which separates these early water-ways is Attica; and the natural heart of Attica is the Athenian plain, as those earliest explorers were not slow to realise.

Defended from the north by the rugged highlands of Mounts Kithairon and Parnes, which rise to 5,000 feet and reach the coast at either end, and from attack over the Corinthian Isthmus by the steep façade of Mount Geraneia, nearly 4,000 feet high, the whole promontory has enjoyed in all ages a comparative security from attack which made it, in many crises of invasion, a natural citadel and refuge. Like the British Isles, and the net in the parable, Attica has “gathered of every kind,” and has bred from chance occupants a peculiar people.

Of the habitable lowlands within the promontory, the westernmost, less well protected against intruders on either hand, has always stood aloof from the rest, and in ancient times formed an independent and usually hostile state. Only for a few brilliant years, at the height of Athenian predominance, was this Megarean section so much as linked with Attica in military and political co-operation. In earlier ages other marginal districts, Eleusis and Marathon, had similar independent existence; and there were even memories of old wars between Athens and the Mesogaia, or “mid-land,” which opens south of the Marathon



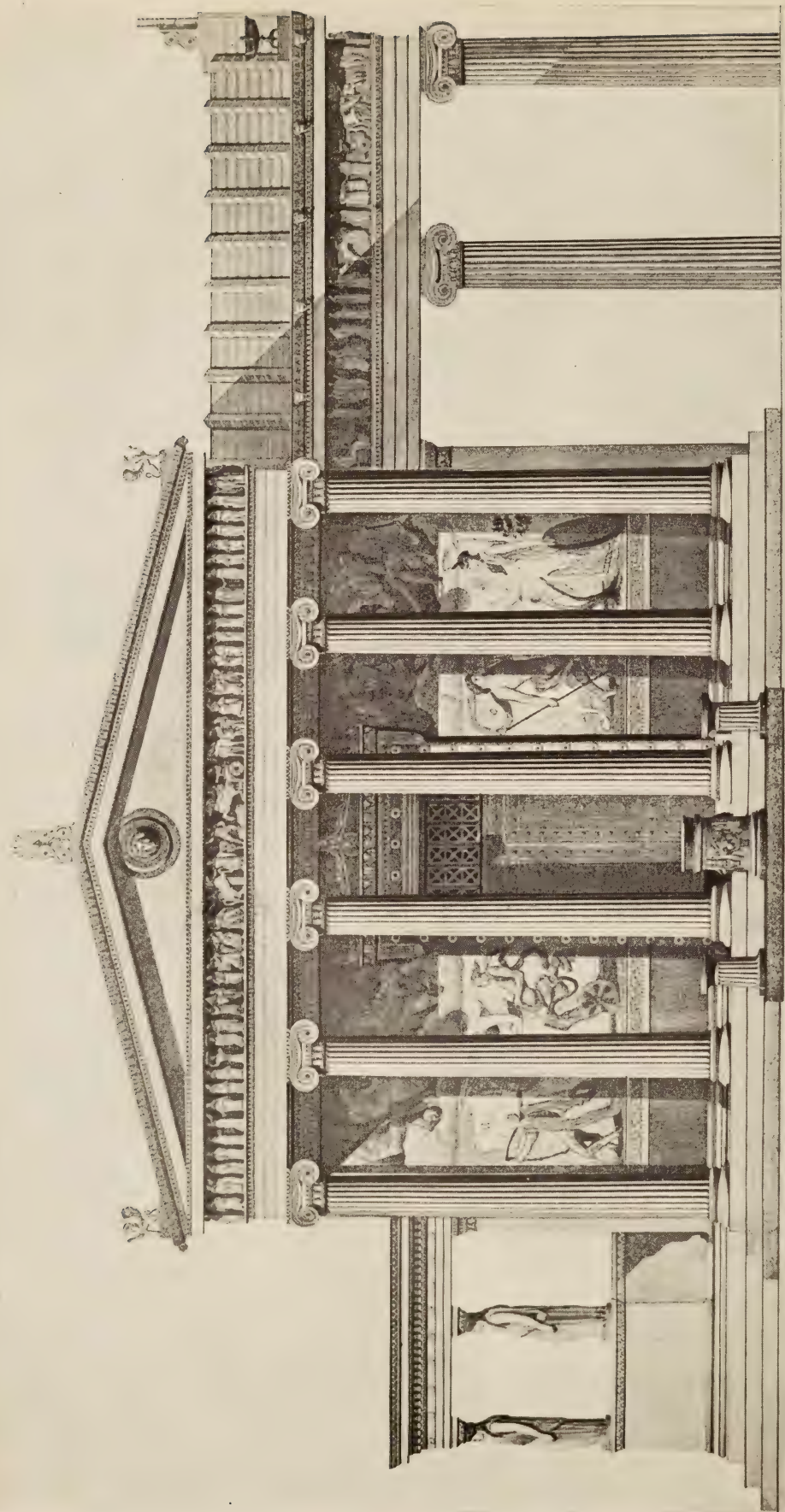
SOUTH WALL OF THE ERECHTHEION WITH ITS CARYATID-BORNE PORTICO

The foundations in the foreground are probably those of the "Hekatompedon," the ancient temple of Athene, which was partly or wholly destroyed during the Persian invasion, and whose place was taken by the new Parthenon. Beyond it is the south side of the Erechtheion, with the porch of the Caryatides. The part of the building to which this porch, together with the north entrance, gave access was probably built over the old and hallowed tomb of Kekrops, a legendary Athenian king.



PORTICO OF THE SHRINE OF THE CITY'S GUARDIAN GODDESS IN THE ERECHTHEION

This photograph gives the same point of view as the reconstruction on the following page, and shows that the Erechtheion is now, alas, but an empty shell. Many have been its vicissitudes: it has been a Christian church and a Turkish harem; it has been scarred by war and half ruined by storms; but such is its intrinsic appeal that attempts have always been made to replace the blocks in position. The part to which this portico gave immediate entrance was the shrine of Athene Polias.



After a restoration by Tétaz in "Monuments Antiques."

PAINTING, SCULPTURE, AND GLEAMING FINISH RESTORED TO THE ERECHTHEION ON THE ACROPOLIS

The most famous building in Athens besides the Parthenon is undoubtedly the Erechtheion, so called because a portion of it at least was dedicated to Erechtheus; it is unique among Greek temples, but it is uncertain how much its irregularity of plan is due to the unevenness of the site, and how much to the sanctity of almost every yard of the Acropolis, which necessitated the building enclosing certain sacred objects and not encroaching upon others. This restoration shows the eastern or main entrance and portico leading to the most normal section, with the northern entrance on the right and the porch of the Caryatides on the left. The style is the most delicate and ornate Ionic, and the restored sculpture and painting show the contest of Athene and Poseidon for the especial worship of Athens.

country on to the eastern sea. But in historic times all these had long been incorporated into a single political community, which may fairly be described as the "united states" of Attica.

Of this united Attica, the political centre was Athens; and all free occupants of this promontory-state were alike Athenians politically. It was an achievement of early statesmanship which has no precise parallel; even the beginnings of Rome show no such triumph of political genius over physical obstacles and racial incongruity; and it is this initial marvel which sets Athens always a little apart from all other cities of the ancient Greeks, a city-state of the first rank, in an age when the city-state was the highest social structure in existence, and at the same time an anticipation on a smaller scale of the territorial nation-states of the modern world.

The Athenian plain, as has been already noted, was the natural centre of the economic and political life of Attica, its heart and its brain. It is an oblong lowland, sloping from north-east to south-west, and opening on to the Saronic Gulf. The rugged Parnes, already mentioned, bounds it on the north; Pentelikon and Hymettos, almost as lofty and far more impressive, separate it respectively from Marathon and from the mid-land of the promontory; Aigaleos, rather lower, and with two easy passes, divides it from the plain of Eleusis on the west. Somewhat as the rocky island of Salamis screens Eleusis from the open gulf, so the much smaller eminence of Munychia, at the foot of Aigaleos, restricts the shingle foreshore of Phaleron Bay, and provides an almost unparalleled cluster of steep-sided bays and coves, large and small, which were to become the great naval and mercantile harbour-quarter of Peiraeus.

The plain itself is watered by two streams. Kephissos, the larger, rises in the foothills of Parnes and Pentelikon, and has a wide, sunny basin, of which the lower half is alluvial and nearly level. The other, Ilissos, rising between Pentelikon and Hymettos, on the eastern side of the district, has a deeper, narrower valley, with a steep torrent bed and occasional rapids and rocky falls, and then a short open course obliquely through the lowland, to join Kephissos a little above its mouth. Formerly, no doubt, before the shoreline advanced it had its own exit into Phaleron Bay. Neither stream is large enough to form a serious

natural barrier, and both are usually dry quite early in the summer; but the Ilissos bed has been a sufficient landmark to keep the seaward foothills of Hymettos always a little aloof from the rest of the plain.

Between these streams a ridge of old marble rock, of like structure with the frontier mountains, runs obliquely out into the plain from its eastern side. Most of it is featureless and inconspicuous, but at its seaward end it first rises into Mount Lykabettos, a steep grey-blue gable of nearly 1,000 feet, and then sinks into a discontinuous plateau sloping rapidly into the lowland, and dissected by the last gorge of the Ilissos, and by smaller torrents off the slopes of Lykabettos.

By these torrents, one flat-topped section of this plateau has been cut away from the rest, and shaped into a roughly oval hill, the world-famous Acropolis, about 512 feet high, precipitous except at its narrow west end, which is connected by an open ridge with the similar but lower cliff-façades of the Hills of the Muses and of the Nymphs, and the broader Pnyx between them, which are the principal divisions of the plateau already mentioned. Close below the west end of the Acropolis, and a little to the north of the connecting ridge, a similar smaller block, of the same rugged formation, presents towards the Acropolis a steep bluff, the Areiopagos, but slopes gently through the district known as Melite, into the claylands bordering the Kephissos, which were to be the "potteries" of the eventual city.

Between the south side of the Acropolis, the steep eastern scarp of the Muses' Hill, and the bed of the Ilissos, which is here almost a gorge, converging and obstructed rainwash makes a patch of wet ground known as Limnai, "the fens"; and on the north side of the Acropolis the former track of the largest of the torrents from Lykabettos, known as Eridanos, is only marked now by a depression hardly more perceptible to-day than that which gives names to Holborn, Fleet Street, and Ludgate Hill, but was sufficient in early times to set a limit to the Athenian "Agora" or Cheapside, and serve the miscellaneous purposes, defensive and unsavoury, of a drain and a city ditch.

Three thousand years of busy humanity have left little of the soil, and even less of the natural verdure, of this impressive and beautiful site. To refigure "violet crowned" Athens, as

Long Walls

Museion

Statue and Arch



After a restoration by Bühlmann.

Stadium

Temple of Cronos and Rhea

Temple of Zeus Olympios

Bridge over Ilissos

Temple and Arch

GENERAL VIEW OF ATHENS FROM THE EAST IN THE

an Pnyx Parthenon
Theatre of Dionysos Odeion of Perikles Erechtheion



of Aphrodite Roman Baths Hadrian's Wall and Gate Country House

—DAYS WHEN HADRIAN HAD ADORNED THE CITY

Theseus and Kodros loved her, we must clothe the lilac-coloured marble, and its rusty veins and crannies, with soil as red as that of the Mendips, strongly contrasted with the drab and grey alluvium of the plain, the gleaming shingle of Phaleron beach, and the soft cheese-coloured limestones of Munychia and some of the foothills under Parnes. We must afforest Lykabettos and Aigaleos as the government of to-day is doing, with black copses of maritime pine, sprinkle the lower slopes with the bronze-like patina of sturdy oak-woods, and fringe the water-courses with emerald foliage of planes and flickering grey-green poplars.

All arable lands as in the valleys of Judah must "stand so thick with corn that they shall laugh and sing," and in the green shall be splashes of scarlet poppies and anemones, purple bugloss and Spanish iris, sky-blue borage and forget-me-not, and sheets of marigold and sorrel. This for April weather; by June, Persephone and her flowers will be in another world, and Demeter will reign in harvest cloth-of-gold. Even then the vines will be green still on the lower slopes, with the velvet texture which is their own; the fodder-crops and salad-beds in irrigated patches will not have wilted yet, though the gourds and melons will begin to glow among their foliage. The darker green and dense shadows of the fig trees, among the perennial grey lacework of olive groves, will set off the white walls and rose-red tiling of the farmsteads, and the blaze of pink oleander bushes along the torrent banks. Around all, the same unpaintable lilac, orange-stained, of the great hills, opalescent among the black clumps of holm-oak, and deep shrubby tints of myrtle, bay, box-wood, and rosemary; above all, the pines and the sky, cloudless, saturated with colour like the borage-flowers, and so luminous that every shadow is of a strong purple-blue.

Such was the site of Athens as nature made it. We have now to see what man has done with it. The name itself, in Greek as in English, is plural; and the names of principal districts of the later city are clearly derived from those of a cluster of early villages nestling in hollows of the craggy plateau. Under the shadow of the citadel in their midst they were at least secure. With the Kephissos plain at their doors they might become wealthy—and the men of the "Plain" were long the predominant partner of the Athenian city-state. With the good will of the

"Shore" and the "Highland"—to name their two chief rivals in early history—that Athenian state might even become powerful; for its area was large, as Greek states reckoned territory (being indeed, about half as big as Yorkshire); its position was central, its frontiers unusually strong, and its natural resources varied and copious. It had the best soil and climate in Greece for the olive, Athene's own gift to her people; extensive wheatlands, excellent vines on the hillsides, timber enough for early needs of construction and fuel, and beside the fine clays of the "potteries" outside the town, there were in due time the marble of Pentelikon and an inexhaustible silver-mining area in the rugged far end of the promontory, the Cornwall of ancient Attica. Above all—for this mattered most in early times—there was the natural fortress-rock of the Polis; and it was on and around this natural citadel—by good fortune the only one of its kind in the whole region—that the political life of the Athenian people centred, as the political life of Scotland has centred round the castle and "old town" of Edinburgh.

Fragments of early walls, unhewn but massive enough, and traces of a prehistoric palace within their circuit, confirm the first literary reference to the "strong house of Erechtheus," whose ancient kingdom, like the worship of "Our Lady of the Fortress," Athene Polias, goes back in Greek folk-memory at least to the fourteenth century B.C.; the political unification of the people of the promontory by the national hero Theseus, and the liberation of the whole gulf-area from the Minoan sea-kings of Crete, belong probably to the thirteenth; and the heroic choice of King Kodros—who died that Athens might live—averted the worst evils of the Dorian Migration in the early part of the eleventh. These and other memories of older days hallowed the "Rock," the "Council Bluff" at its entrance, and the "Market" in the lower town, long before any of those buildings arose which were standing in the fifth century, when Xerxes' Persians occupied and burned the town, and forced the "wooden wall" with which the men of lesser faith had striven on the strength of an oracle to guard the citadel.

That momentary disaster cost us all earlier monuments, but also preserved for us in the fragments of them precious evidence of this older city for which on other sites we look in vain. For



THE PATIENT CARYATIDES OF THE ERECHTHEION WITH THEIR UNENDING BURDEN

This motif is not very common in Greek art. It was felt, probably, to be an artistic error to make a statue appear to bear a weight which the human frame would be incapable of bearing; but in the case of the Erechtheion, so harmonious and well-proportioned are the lines, so light and delicate the masonry, that we are unconscious of any incongruity.



Photo by the Autotype Co.

NORTH PORTICO OF THE ERECHTHEION LEADING TO THE SHRINE OF PANDROSOS

Through the north portico of the Erechtheion, the temple of the tutelary goddess Athene Polias and other deities of the city, lay the way to the Pandroseion or shrine of Pandrosos, daughter of Kekrops, said to be one of the earlier Athenian kings. This glorious portico was originally supported by four columns resting upon a high parapet. The existing arrangement of pilasters engaged in the wall dates from the Roman period. In the Pandroseion grew the sacred olive tree.



CHORAGIC MONUMENT OF LYSIKRATES

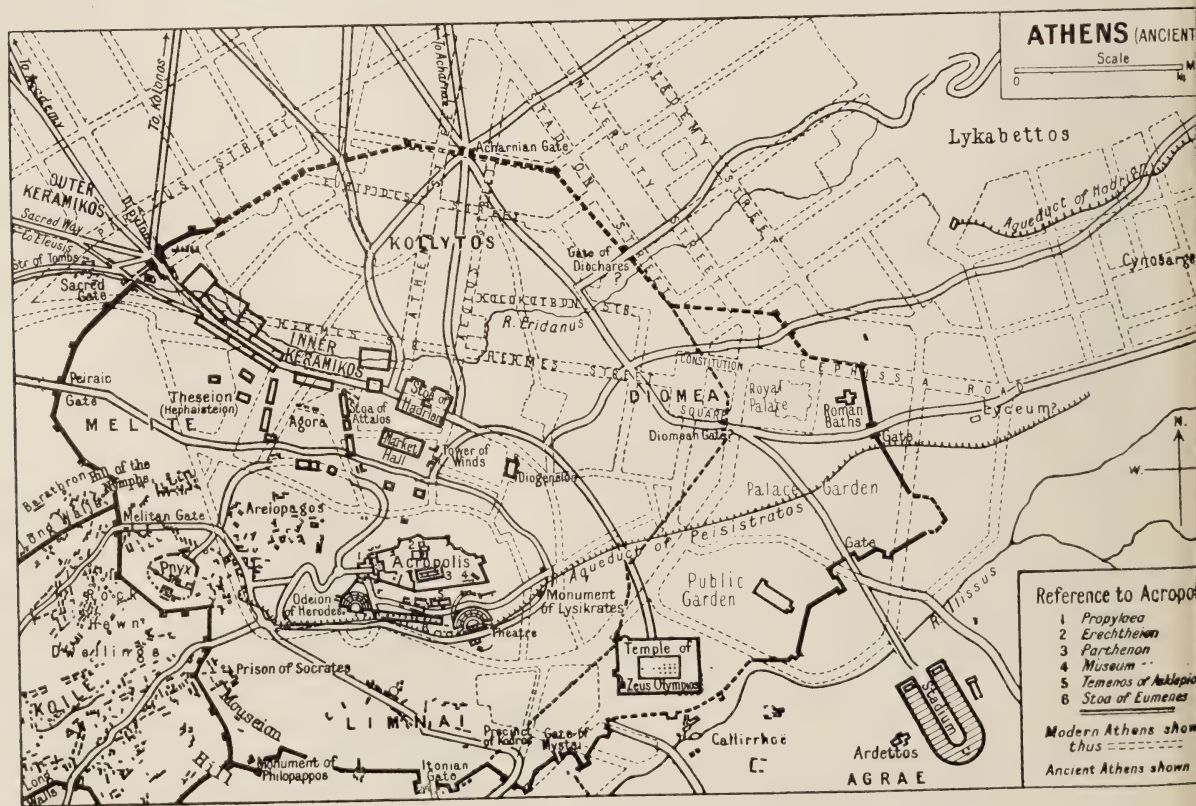
A small circular structure of Pentelic marble 21 $\frac{1}{2}$ feet high, consisting of six engaged Corinthian columns, and erected about 335 B.C., this is the only extant example of a class of monuments that once lined a whole street in Athens, and were designed to support the tripods given as prizes to the successful "choragos" or producer at the theatrical contests of the Dionysiac Festival. The frieze represents Dionysos and the Tyrrhenian pirates.



Photo by the Autotype Co.

THESEION AND DISTANT MAJESTY OF THE ATHENIAN ACROPOLIS

Softened by distance, and with the illusion heightened by the undamaged profile of the "Theseion," the outlines of the Acropolis and buildings seem to melt into the finished perfection of other years. The "Theseion" on the left was probably really a temple of Hephaist beyond it on the right are the towering Acropolis walls, those on the farthest right having been built by Cimon in 468 B.C., and those on the left some thirty years earlier after the Persian invasion, during the ascendancy of Themistokles. In the centre is the bulk of the Parthenon.





—CLEAR CUT AGAINST THE BRIGHT BACKGROUND OF AN ATTIC SKY

with the Erechtheion on its left, and on a buttress of the Propylæa, which may just be seen on the extreme right, the lovely little temple of Athene Nike is silhouetted boldly against the sky. In the foreground are the tops of olive trees, gift of Athene and symbol of the greatness of Athens; for the oil of Attica was esteemed throughout the Greek world, and the need to supply jars was the stimulus which gave pre-eminence to the Athenian potter and distributed the produce of his workshop as far as Greek colonisation penetrated.



After a reconstruction by Bühlmann.

RESTORATION OF THE STREET IN ATHENS WITH THE TOWER OF THE WINDS

Above is seen a reconstruction of the site where Athenians came 2,000 years ago to learn the latest weather report. Although the porches of the tower no longer exist the structure is not only a beautiful feature but one of the most characteristic buildings in Greece, the date of its erection being probably in the first half of the first century B.C. The bronze Triton which once served as a weather-vane is pointing to Apeliotes, the east wind. Within the tower there can be seen still the round channels which once belonged to a water clock and into which flowed water from a semicircular cistern.



"PRISON OF SOCRATES" HEWN IN THE FLANKS OF THE MOUSEION HILL

Among the rock-hewn chambers to the west of the old city is a series which has become known, in the haphazard manner of early archaeology, as the "Prison of Socrates." It consists of three excavations cut horizontally into the side of the rock, and one in the "beehive" form of the Mycenaean graves; though undoubtedly intended for tombs, they appear to have been later converted into dwellings, perhaps in the stress of the Peloponnesian War, when the countryside flocked for protection to Athens.



WHENCE ORATORS SWAYED THE ATHENIAN MOB: THE BEMA ON THE PNYX

West of the Acropolis lies another smaller hill, notable, apart from the prehistoric rock-hewn tombs and dwellings by which it is surrounded, for a huge platform on two levels partly cut out of its sloping side and partly retained on the outside by a wall of massive blocks. Here, according to tradition, was the first meeting-place of the Athenian popular assemblies, and here, on the upper terrace, is still to be seen the "bema," or stone rostrum with steps, whence orators addressed the crowd below.

it was the foresight of Themistokles (whose larger reading of the oracle of the "wooden walls" had created, only just in time, the first Athenian navy, and whose handling of that naval force had turned the scale against the invaders) that was also the driving force of the hurried reconstruction, "bidding them build, man, woman, and child, sparing neither public nor private edifice that was available," but destroying and utilising all, "till the walls were high enough to fight from," and Themistokles could reveal to their rivals the success of his manœuvre. No wonder that from time to time, in Athens, men came upon a forgotten altar, and reconsecrated it "to a god unknown."

Of this hasty barricade short sections remain, largely composed of architectural fragments, tombstones, and other sculptured slabs, such as have lately revealed so surprisingly the hockey and hand-ball teams of Athenian schoolboys of that time. It is through this untidy wall that the famous "Double Gate"—like London's "Temple Bar"—led from the noisy, crowded streets of the "Potteries Within" to the stately calm of the cemeteries which lined the "Sacred Road," by which processions went to Our Lady of the Corn at Eleusis—the Holyrood or the Westminster of the Athenians. Other débris from the devastated town found secure lodgment behind an enlarged curtain wall on the Citadel Hill, similarly patched together, in parts, out of columns and architraves from the ruined temples.

Here they have been recovered in our own time—quaint, grim, gaudily-painted sculpture from temples; votive statues and terra-cottas, bronzes and painted pottery, chief treasures now of the Acropolis Museum. From them we may judge how rapid, as well as how splendid, was the passage from primitive and archaic to the mature style and matchless execution of the succeeding century. For it was in the two generations next following the Persian War that Athens, and especially the Acropolis, took on that outward beauty and magnificence which has been her glory ever since.

The Citadel Hill, enlarged and levelled outwards to the new wall, was approached through a palatial Fore-gate, with picture gallery and other buildings annexed. On the right, marking an awkward hummock of rock, once a flanking tower of older defences, rose that exquisite Temple of "Victory-come-to-stay"—

surely the happiest alternative to a blasting-charge that ever engineer conceived. Its platform balustrade carries the well-known reliefs of other Victories, winged and hovering still—for victory, too, has its price—before the pathetic Athene mourning her Unknown Warrior.

On the left, as you passed through the five-fold doorway and its inward colonnade, you saw, uncompleted still, the quaint new "House of Erechtheus," enclosing holy places and still holier relics, with its noble north door, and the stately Porch of the Maidens which was to be the central feature of its unfinished façade. The band of sculpture close below the roof-line struck the eye at once; for on the background the black Eleusinian marble, each figure stood out white as on a Wedgwood vase. On the highest level of the terraced plateau rose the supreme ornament of all, the "Maiden Bower" of the goddess herself, the Parthenon, an oblong building, with a six-pillared portico at each end, within its colonnade of Doric columns, eight to an end and seventeen to a side. Before its eastern end blazed the great altar. Within, the main chamber, 100 feet long, like the "Old Temple" which it replaced, guarded inside its internal colonnade the colossal goddess, fully armed, with a Victory on her outstretched hand, wrought all of gold, with the flesh parts in ivory. Around it, in time, were grouped other dedications, and the splendid temple furniture; and the back room, opening to the western portico, served as storehouse for many more.

Another figure of Athene, in gilded bronze, and even larger—for it was 30 feet high—stood in the open between the Temple and the Gate House, a joyous landmark of her ships, for the flash of sunlight from spear and helmet could be seen as soon as you rounded the last cape and set course up-gulf for home. Other sanctuaries, with their altars and worshippers, and monuments innumerable, crowded the pavement of this fortress sanctuary; it was the museum, the record-office, the national monument of a great people, conscious of their achievement, able and willing to be the "School of Greece"; for had they not solved the problem of "culture without luxury"?

It would have been more in accord with modern taste—and was, in fact, long assumed—that Athenian builders and sculptors should have left the superb marble of the Pentelic quarries unre-



Specially drawn and coloured for "Wonders of the Past," after the restoration by Bühlmann.

BEAUTY THAT BECAME THE WORLD'S HERITAGE: THE ATHENIAN ACROPOLIS FROM THE WEST

From the earliest times the Athenian Acropolis was a strong and probably a sacred spot—the central stronghold keeping watch over the little villages, socially but not politically connected, which had gathered round its foot. And in the days of the splendour of Athens, after statesmen of genius had welded communities into an astonishing political whole, the old and hallowed city and its temples were not only preserved, but were made more beautiful, especially after the Persian wars, that had razed buildings too sacred otherwise, perhaps, to be altered. Themistokles had been a builder; Kimon had improved the great maritime harbour that left an unrivalled level site; and last came Perikles and gave us the Parthenon and the Propylaea.



Scenically drawn and coloured for "Wonders of the World," after the reconstruction by Baldmann.

CENTRE OF ATHENIAN LIFE, THE TRADITION-HAUNTED AGORA BELOW THE ACROPOLIS

Diminishing the Agora, which lay to the north-west of it, may be seen the Acropolis heights with the statue of Athena Promachos, the roof of the Parthenon, and the Propylaea temples. In the foreground is the Agora or market-place, with the Stoa of Porcius in the left and the Stoa Publica continuing the line at the back of it to the Bouleuterion or Senate-house and the Tholos, whose portable high officials dined at the public expense. In front are the shrine and statue of Epione and Ploutos, with the Bema or market in the centre of the steps. The small entrance to the right is the Agora proper, and the peristyle supported by figures is the Stoa of the Epistates, with the facade of the Metroon, or Temple of the Mother of the Gods, behind it.

lieved by colour or gilding. But Athenian marble statues were no more "studies in pure form" than ancient bronzes were studies in "pure verdigris," as the contents of archæological museums might suggest. Bronze, carefully cleaned as modern silver is, and as ancient statues were kept clean by their custodians, is as apt material for rendering the sun-ripened limbs of a southern people, as marble is inadequate to represent humanity without careful tinting of the eyes and the flesh parts, and more emphatic colouring of sandals, armour, and drapery; and in Athenian sunlight unrelieved marble surfaces are almost intolerable to the eye, as a stroll down modern Stadium Street will convince you.

Statuary, too, and buildings likewise, had a long history in cruder materials already, before work in marble was achieved; the rough Munychia limestone, like mediæval rubble, needed a good coat of whitewash before it was first to be seen; and over the whitewash colour was habitually applied as it is in the Greek islands to-day, and was in Athens itself within living memory. The fragments of pre-Perian date, both of monuments and of figure-sculpture, are conclusive evidence; and on the Parthenon itself, though the colours have disappeared now, they protected the marble long enough to cause appreciable difference of texture.

No doubt, after Pentelic marble came into common use, its unrivalled whiteness was utilised as it deserved, and later architects pedantically copying the rain-washed exteriors of old masterpieces were more sparing of colour than their predecessors; but we may safely picture the ancient city, more especially in its early splendour, as aglow with polychrome decoration.

Outside the Acropolis, the fifth century town was an odd mixture of splendour and simplicity—"culture without luxury"—in entire keeping with its motto. Here there were other notable temples, such as the so-called Theseion, which is still almost perfect, of the same simple construction and grave style as the Parthenon; and many smaller shrines of heroes and the "little gods, the gods that bless" or curse; some of them hardly held a dozen worshippers, and nestled like city churches among the shops and houses.

There were business-like offices for public officials—temples likewise, in many instances, for in ancient life State and Church

were one; every servant of the City was a servant of Athene, too, or of some other power "whom this City observeth." Especially round that immemorial "gathering-ground," the Agora, stood public buildings of special or of general use; long colonnades for covered market and courts of law and business appointments, surrounding irregularly, and with temples and other buildings interspersed, an open space like a fair ground, usually full of stalls and shanties, and mere piles of goods for sale, but easily cleared at a bugle-call, if a meeting was due, by the odd-looking Thracian police, talking heaven-knows-what among themselves, for by custom they were recruited from wild highlanders abroad.

But the greater part of the town, so far as we may reconstruct it from the few streets excavated about twenty years ago by the German Archæological Institute, was very like modern Athens or the older parts of Naples or Rome, only with far less provision for traffic of any kind. The lanes were ill paved and ill drained, the houses small and cramped, the shops open-fronted to the street, like those of Shoe Lane once beloved of tourists "Who could distinguish from its neighbours the house of Miltiades or of Perikles?" cries an Athenian speaker in the fourth century, lamenting a change of taste which seemed to him significant of a change of morals, too; and we have glimpses, in other chance remarks, of women and children hustled upstairs in a hurry when the master of the house unexpectedly brought home an acquaintance on a matter of business.

Later and more commodious houses had a front passage leading to a little courtyard on to which, on its sunniest side, one of the living-rooms was open for its whole width. The front door opened outwards, like our stable-doors, to save space within; so you knocked on coming out, or when ejecting slops into the lane, to warn passers-by. And all doors had raised thresholds, as in modern Greek villages, to keep out rain; unlucky to trip up over, but a convenient supplement on a warm day to the scanty chairs and camp-stools.

But the menfolk were not much at home, except for meals and sleep. The house was the women's domain, and respectable women were not expected to be seen abroad, except for necessary marketing and the laborious journey to the public well or conduit. "The best woman is she whose name is seldomest heard among



CAPRICIOUSLY PRESERVED: THE "GATE OF THE AGORA"

The "Agora" or market-place proper of classical times lay east of the Acropolis and embraced most of the old "Kerameikos" or potters' quarter; but the portico of Athene Archegetis in the Doric style (erected about the beginning of the Christian era) which is known as the "Gate of the Agora," gave entrance to what was possibly an oil-market to the west of the "Tower of the Winds." Its four well-preserved columns supporting an entablature and pediment show the survival of a fine architectural tradition.



THE ODEION WHERE ATHENIAN PLAYGOERS ASSEMBLED IN THEIR THOUSANDS

As a great centre of art and learning, Athens had many visitors and admirers. Patrons at home and abroad lavished gifts upon her or erected sumptuous buildings within her walls. The interior of the Odeion illustrated above was erected in the Roman round-arched style with three storeys by Herodes Atticus, a rich Athenian, for dramatic performances. At the back of the stage is a massive wall broken by the usual three stage doors and relieved by niches. The tiers of seats coated with Pentelic marble rose in a semicircle on the rocky slope of the Acropolis and sufficed for 5,000 spectators. The whole edifice was once covered with a superb roof of cedar-wood.

the men." The leisure time of the men, on the other hand, was spent in the market-place or the drill-ground, in the wine shops or the numerous athletic clubs, where you could get a bath or a chat, as well as a game, or a bout of fencing or wrestling. Work began early, and ended early; festivities ended late sometimes and noisily.

Festivals, religious in origin, and more or less religious in their observances, were as common as saints' days in modern Greece. Some included various kinds of games, especially races between customary points, like the torch-race with elaborate team work from a suburb chapel to the Cave of Pan under the citadel wall, a thank-offering for the issue of the Marathon fight. Many had processions or pageantry, like the hauling of a model ship to the Parthenon, with Athene's new and gorgeous robe for a sail.

And at the Dionysia there were the plays in the theatre, a natural hollow on the south side of the Acropolis, enlarged and improved with marble seats, and at length with a permanent stage instead of the old platform on wheels. Even on a winter day it was seldom too cold to sit thus in the open air muffled up and crowded together, with Ilissos and the purple Hymettos country for a back-scene, and noisy fellows cracking nuts higher up "on the rocks," which served Athenian play-goers for a gallery.

Later, there was a concert-hall, too, farther west on the same slope, stone-built to replace the quaint wooden auditorium which the wits called "Perikles' hat," and a long and deep colonnade between this and the theatre, for refuge on wet days, a welcome benefaction from Eumenes, king of Pergamum, whose story is told in pages 349-354.

Few, if any, of the streets showed any engineering skill or architectural pretensions. Probably the most stately was the Street of Tripods, which ran, rather like that which overlooks the Grassmarket at Edinburgh, along the slope above the Agora, with a fine view northward over the plain, to the "black country" of charcoal-burning Acharnai, and the frontier ridges of Parnes. It would round the citadel's eastern cliffs, as far as the theatre, and was decorated with the monuments of successful performances. One of these only remains, a charming little tower faced with slender columns and carved frieze, with a high plinth below

and a lodgment on the roof for the tripod won by Lysikrates, whom it commemorates. Other important thoroughfares led from the market-place to the Double Gate, and thence dividing, through suburbs, towards Eleusis, to the Academy Gardens, and to Kolonos, another park on a low hill some distance to the north of the city.

The road to Acharnai led through a gate of its own; there were alternative roads to the port; and the main road into the midlands of Attica passed eastward up the Ilissos valley along the south slope of Lykabettos. Here, about a mile from the Diomean Gate was the drill-ground, and Lyceum College for scientific and philosophical studies, of which Aristotle was the first director; and beyond the river bed the racecourse—stadium or stadion—the only public structure of old Athens which has been completely restored, a memorial of the Olympic Games of 1896.

It was in this direction that ancient Athens tended to expand, after it ceased to have military importance; and the modern palace and fashionable villa quarter are along the same highway. There had been an early suburb, however, on this side, towards the river, as far back as the sixth century B.C., laid out by Peisistratos and his sons around the vast temple of Olympian Zeus, which neither they, nor King Antiochos of Syria, nor the Emperor Augustus in after days lived to see completed, though they all had a hand in its building; the Emperor Hadrian, a great lover of Athens, finished it in A.D. 129, and installed a great statue of the god, in gold and ivory like the virgin goddess on the Citadel. Of its original equipment of one hundred and four columns, in a double range down each side, with triple rows at the ends, only fifteen are still standing to-day. They are of Corinthian style, 56 feet 7 inches in height. Hadrian also greatly extended this eastern suburb, and his new entrance to it, which still stands, bears on its inner face the words:

“This is Athens, once the city of Theseus.”

and on the outer:

“This is the city of Hadrian, not of Theseus.”



Underwood Press Service.

WEATHER BUREAU OF ANCIENT ATHENS: THE TOWER OF THE WINDS

This well-preserved octagonal marble edifice once served the Athenians as a weather bureau. On the upper spaces of the eight walls, which are turned towards the different points of the compass, are reliefs representing the various winds, and on the top of the roof was once a huge Triton working on a pivot, with a rod in his hand that pointed to the figure in the quarter where the wind lay. The two figures best seen in the illustration are on the left Apeliotes, the east wind, showing fruit and flowers, and on the right Kaikias, the north-east wind, holding a dish of olives.



LOOKING DOWN THE STREET OF TOMBS THAT LED FROM THE "DOUBLE GATE"

The perfect artistic taste of the ancient Athenians is nowhere shown to better advantage than in the funeral monuments of the Street of Tombs; no unbridled signs of grief are to be found there; sorrow for the dead is shown by the poise of the body, and the dead themselves are represented in some of the simplest and most unaffected actions of their daily life.



FRAGMENTS OF ATHENS' SPLENDID STREET OF TOMBS THAT STILL ENDURE

Above are the right and left sides of the Street of the Tombs, or principal cemetery of ancient Athens. Here are the tombs of Thesandros and Simylos and Pythagoras. Farther on (see upper photograph) is a striking monument crowned with a large bull. In front of it is a little templelike monument with traces of painting now almost completely erased; then a great Molossian hound. Beyond it is a tomb in the shape of a boat and opposite the hound is the tomb of Hegesos, perhaps the finest of all, with a relief of a lady at her toilet attended by her maid.



Photo by Autotype Co.

THE PROPYLÆA OR CEREMONIAL APPROACH TO THE ACROPOLIS

The Propylæa were a stately system of vestibules and doorways giving access to the Acropolis; they were the glory of Athens when they were built, and even now that they are in ruins they have in some ways a greater power of fascination than any other building there. And yet misfortune dogged them from their inception; the original plan of Mnesikles the architect was never fulfilled, partly, perhaps, owing to troublous times that beset the city, and partly owing to religious reluctance to build over ancient sites, which Perikles was no longer able to defy. And in later times storms of ignorance and barbarism have swept across them, the most spectacular disaster being the explosion of a Turkish powder-magazine. The blank wall at the back of this northern wing is that of the ancient Pinakotheka or picture gallery.



After the reconstruction by Marcel Lambert in "Monuments Antiques."

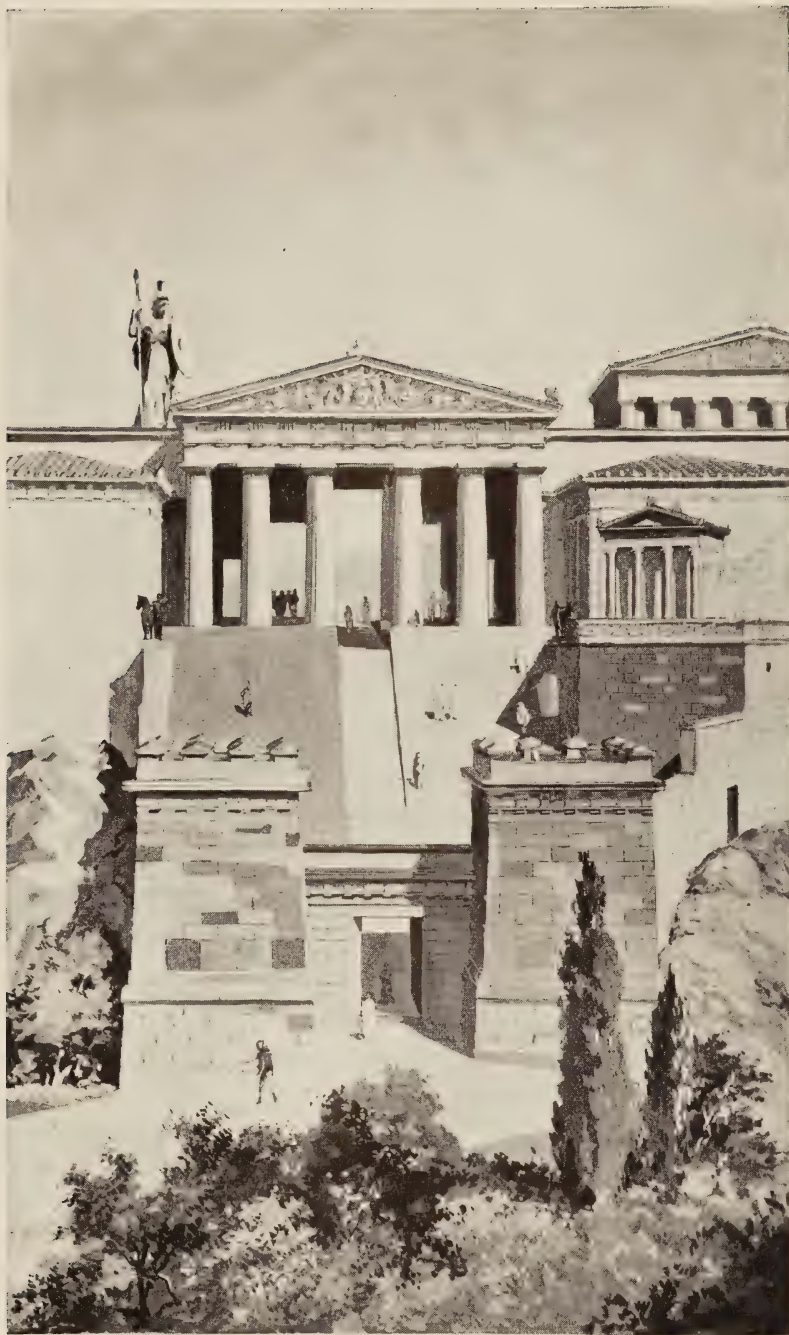
RESTORATION OF THE ACROPOLIS, FROM HOAR ANTIQUITY THE—

On a hill dominating the Attic plain there rose the Acropolis, or castle of Athens, where lived the ancient kings, and stood sanctuaries of state. The sole approach was on the west side, which is reconstructed above in all its ancient glory. Theseus, the fifth king, is regarded as the real founder of Athens, and to him Thucydides assigns the synoikismos, or subordination of all the Attic communities to this city as their capital. Originally it consisted of the Acropolis only, but gradually extended in all directions. Persians destroyed the ancient buildings in 480 B.C., but Themistokles and Kimon rebuilt the walls, and Perikles then became the chief founder of those magnificent buildings illustrated



—NUCLEUS OF ALL THE SETTLEMENTS ON THE ATTIC PLAIN

here, which even in their ruins still present the finest picture of the unrivalled art of antiquity. Above we see the highly artistic Propylæa, and poised above and behind them the bronze statue of Athene Promachos and the Erechtheion, temple of the tutelary goddess Athene Polias. On the other side rises the Temple of Nike, built like the Propylæa of Pentelic marble; while the building that dominates the whole is, according to most authorities, the most perfect monument of ancient art, the Parthenon, far surpassing all other Athenian buildings in the brilliancy of its plastic and polychrome decorations.



After a reconstruction by F. Thiersch.

GATEWAY OF SOLEMN STATE PROCESSIONS

The Propylæa were composed entirely of Pentelic marble and erected more than 2,300 years ago. Poised beyond them was the 26-foot bronze statue of Athene Promachos that was erected with the booty of Marathon. The goddess was represented in full armour with shield and lance, of which the gilded point gleaming in the sun served as a land mark for sailors rounding Cape Colonna. So fine are the ruins that the task of reconstruction is not great.

The new quarter was known as *Novæ Athenæ* or New Athens.

Another great foundation of Hadrian was a public library, of which sumptuous fragments remain north of a Roman extension of the market-place. Other conspicuous Roman buildings are the great music-hall of Herodes Atticus (who also constructed the Stadium already mentioned) and the pretentious monument of Philopappos, which crowns the Hill of the Muses in the south-western quarter of the city.

Mention has already been made of the Areiopagos—the “Mars’ Hill” of S. Paul’s visit—below the ascent to the Acropolis, and of that middle section of the western plateau opposite, which was known as the Pnyx, perhaps an old nickname, meaning “crowded” or “stifling.” As the citadel stands for the military defence of Athens, so round these lesser hills cling the memories of its political development. For it was on the bare crown of the Areiopagos that tradition placed the first session of that Supreme Court which owned no law but the conscience of its members; which, in ages past, had reconciled the claims of the justice and mercy in the tragic story of Orestes, and had conducted the grim Avengers, now transformed to be “Gracious Ones,” to inhabit thenceforth the rock shelter below this Hill of Dooms. There, after the Persian terror, the guardians of that “law of kindness” held reparation councils till they had set Athens straight, and here, a generation later, were themselves set straight when their work was done.

There, too, long after, “certain philosophers” of Athens which was still if not the “School of Greece,” in law and morals, at all events its leading university, drew a wandering scholar, Paul of Tarsus, aside for cool grave discussion of that new theory of his about “Healing and Rising Again,” “Jesus and Anastasis,” and heard his interpretation of their own “forgotten god.” He, too, like themselves, was a “citizen of no mean city,” and had freedom of speech among the free.

Crowded and stifling, too, the Pnyx Hill must have been on business days, for here, in view of over half the plain, Athenians met, close-ranked, to debate public affairs. The bugle rang out at the appointed hour; the crier went his merry round of the streets, chalking down with his red rope the slacker, the mug-

wump, and the conscientious objector; the meeting was "made" with a modest quorum of six thousand voters out of about thirteen thousand on the register; the council, a standing committee of five hundred, produced its "orders of the day"; the President offered a prayer and signalled to the crier, and at the call, "Who wishes to speak?" the man of the hour—Perikles, or Alkibiades, or Demosthenes—stepped forward to the platform of the great rock-altar; and in due course, by open show of hands, it "seemed good to the Council and People of the Athenians" that a Parthenon should be built, or the fleet be mobilised to coerce a revolted "ally," or the "greatest of wars till now" be accepted as a lesser evil than to be bullied by a rival state which had rejected arbitration.

The great semicircle of assembly and its terrace wall are devastated now; the device of parliamentary representation, which the Athenian Council so nearly anticipated, has made government by referendum a curiosity or a last resource; but the great altar stands foursquare, and the rock-hewn seats on the terrace above it; and echoes of those direct appeals which the sea breeze broadcast through a self-governing people come through to us in Thucydides from the man who "flashed and thundered and confounded Greece."

But Athens, in its great days, was not only a laboratory of fearless political experiment, and of political thinking; not only, in its own leader's words, "a school of Greece" in the disciplined expression of emotions, and in the constructive criticism of ideals; it was also, throughout its great days, and for another century, and more, after them, a busy, prosperous centre of traffic and industry, turning the natural resources of Attica—which we have seen were considerable in agricultural and mineral wealth—to the fullest account which the convenient situation of the region permitted, at the very heart of the Greek world. From Solon's wise replacement of corn-growing by the cultivation of olive and vine, and from the development of silver-mining under the rule of Peisistratos, of the pot-clays of Kerameikos and Kolias under his successors, and of the marble quarries of Pentelikon in the following century, came the raw materials for the service of immigrant craftsmen from older haunts of industry, who were so diligently encouraged throughout the sixth and fifth centuries;



THE SHRINE OF "WINGLESS VICTORY": PENTELIC MARBLE TEMPLE OF ATHENE NIKE

This Ionic temple stands on a bastion flanking the Propylæa on the south; the balustrade, adorned with reliefs representing goddesses of victory erecting trophies and presenting offerings in the presence of Athene, has vanished, but the sculptured frieze, all that now remains of the temple's superstructure, is still preserved. It represents a council of the gods, among whom is Athene, with her shield, sitting next to Zeus. On the sides are battles of the Greeks with mounted Persians, and at the west a conflict between Greeks and Greeks. The temple, whose date is uncertain, was reconstructed with the ancient stones seen at the sides in 1835.



OLYMPIEION AND THE ARCH OF HADRIAN

The Roman Emperor Hadrian was a "Græcophil" and expended much on beautifying Athens. He added a new quarter to the town, to which this arch, 59 feet high, was the entrance, as inscriptions on it record; it stands close by the Olympieion, whose pillars are visible on the left, and which was also completed by the same monarch. Near by, to commemorate his services to the town, rose Hadrian's colossal statue.



THE OLYMPIEION, OR TEMPLE OF THE OLYMPIAN ZEUS

The fifteen huge marble columns shown above are all that remain of what was one of the largest Greek temples ever built. Foundations were laid for the original temple in the time of Peisistratos c. 530 B.C. Work was resumed c. 174 B.C. by Antiochos IV., Epiphanes, to whose edifice the existing ruins belong, but it was only completed by Hadrian. When the temple was consecrated the Athenians showed their gratitude by erecting a statue of the emperor next to the gold and ivory, or "chryselephantine," statue of Zeus.

though their incorporation into the political fabric of the state met an unexpected and disastrous check just when a more liberal decision might have altered the whole destiny of the Greek people.

And it was the handling of the produce of all these activities, and the distribution of them abroad in exchange for the corn, the timber, the textiles, and the bronze, iron, and other raw materials which Attica could not produce for itself, or could only produce at the expense of more profitable employments, while it could so easily acquire them commercially from elsewhere, that made the livelihood of an ever-growing urban population, and the fortunes of great business families; and what was more important still, created, alongside what had been a city state of agricultural peasant farmers, with accessory home industries, the seafarers and quayside occupants of the great harbour settlement of Peiræus, the "neighbouring city" of Athens itself, in ancient, as in quite modern times.

The site of this port nestling among the creeks and coves which encircle the detached eminence of Munychia, at the western horn of Phaleron Bay, has but little early history. Primitive seafaring in those waters, with light, shallow vessels, easily beached at need or when out of use, preferred open roadsteads and a beach of sand or shingle, such as lines Phaleron Bay and many other gulf-heads and delta-fronts in the Mediterranean. Rocky coves, however land-locked, offered too risky navigation to cargo-boats, and were left to fishermen and pirates.

But when ships of heavier burthen and deeper draught traversed the great gulf of the Levant or the Black Sea, or were "driven up and down in Adria," like the cornship of S. Paul, bringing grain from Odessa or Alexandria or the broad lowlands of Sicily and Southern Italy, a harbour with a mole and quays, and warehouses thereon, was a convenience, and became a necessity. Still more, when the security of such traffic—involving as it did the food supply of a whole people—became a matter of public concern, the mercantile harbour of a carrying power like Athens, or Samos, or Rhodes, no less than their rivals in Tyre and Carthage, found a naval base and its arsenal an indispensable supplement.

Polykrates, in the sixth century B.C., had made Samos famous as well as prosperous, and a terror to sea-devils, by constructing

there the first deep-sea port; and his tunnelled aqueduct, a full mile long, through the sheltering ridge behind his harbour-fortress, testified to the needs of its crowded population, and had been the model for the far easier achievement of the "Nine-ways Fountain" with which Peisistratos had made industrial Athens habitable about the same time.

In Peiræus, however, the Athenians enjoyed, by mere bounty of nature, a rock-scarped harbour ten fold more capacious, and securer far against both raids and rough weather than that of Polykrates. Its use came late; but here it was that, in the nick of time, on the eve of the Persian War, Themistokles persuaded his countrymen to construct that war-fleet which lay secure under the very eyes of its creators, ready against all comers. That fleet it was which made possible the crowning deliverance in Salamis Bay, round the point from Peiræus itself, and made possible the return of the Athenians and the re-walling of Athens, already mentioned in dealing with the upper town. And it was a task only less urgent, to fortify the naval port, and to surround the whole base of the Munychia prominence with what its massive remnants show to have been the last word in impregnable masonry.

Thucydides, who had lived among eye-witnesses, describes the marvel as it grew: how in the building of it there was no rubble core; all was of squared stone, from the inner to the outer face; so wide was it that the wagons passed freely by each other, coming and going upon the wall itself with blocks from the quarries in the hill to the point now reached by the builders. It is the description of a railway viaduct rather than a fortress wall.

The land side thus secured, the harbour mouth was guarded, rather later, by a fortress of similar works; of its main gateway the flanking towers are visible still. Within, by a triumph of ancient town-planning, by the first master of that rare art in Greece, the broad quay, with its spacious columnar "exchange," or "exhibition building," gave access to broad streets of uniform "gridiron" plan, with squares at the principal intersections, and colonnaded side-walks. Modern Pieræus does homage to its former self by retracing that old design, as it spreads over the promontory once more. On the sea front were more quays, round fishing coves, and another docking station, with a theatre



ACROPOLIS, PARTHENON, AND PROPYLÆA FROM THE SUMMIT OF THE PNYX

This is the view of Athens that her triumphant sailors caught when returning from the Peiræus after some successful cruise. From early times Attica was famous—or so its people vaunted—for a clear, pure atmosphere, and for some lambent quality of the sunlight that lent a halo to the gleaming temple-crowned height of the Acropolis when viewed from the sea. Seen distantly, only the flash of the spear-head of Athene Promachos is needed to give the illusion that Ancient Athens still endures.



After the reconstruction by F. Thiersch.

THE STREET OF TOMBS IN ANCIENT ATHENS

As in the Appian Way at Rome, the Street of Tombs at Athens was also a highway leading into the city. The tombs were usually arranged in rows in order of families, several of which extended down to the Roman period.

almost on the promenade, and a larger and more famous one high upon the hillside—their perennial back-scene just Salamis and the “thousand rippling laughter” of the gulf, and the black peak of Ægina, the “national enemy” for so long; and on a clear day the castle-rock of Corinth and the snowy gable of the Arcadian mountains.

So planned, and in great part completed, Peiræus was architecturally the completest contrast imaginable to the crowded dwellings and haphazard thoroughfares and alleys of Athens. Themistokles did not live to see it in its pride; but a lonely tomb, said to be his, stands far down the promontory, where the traffic hauls close to the shore, and the sailor may hail a blessing on the man who built the ships for Salamis.

Again, in due time, less than thirty years later, when the very success of this new business centre and also (we must admit) the not unnatural elation of the Athenians themselves in such prosperity turned neighbours and old rivals into enemies and brought “Dorian war” into Attica, a fresh stroke of constructive imagination and far-sighted strategy linked city and port together by the famous “Long Walls” from gate to gate, enclosing the crowded, dusty highway between continuous screens of lofty masonry for nearly four miles; so that the Queen of the Seas, as Athens now was, might deem herself insular, as the hated Ægina had been, and defy the land powers to imperil her. There was an old warning to the effect that “a Dorian war shall come, and dearth therewith,” but on the completion of the “Long Walls” Athenians might well feel that this peril at all events they had forgone.

Yet those “Long Walls” were in a sense the beginning of the end. The sea-road was secure; but Dorian hatred grew, and croakers, altering one letter, murmured “and death therewith.”

And this time the doom fell. The Spartan invasions of 431 B.C. and the following years drove the country population of Attica into false security behind those Walls, camping out, like Smyrna refugees in Athens to-day, “in friends’ houses, if they had any, in waste places, temples, shrines, indeed in anything that was not locked up; in bastions of the walls, and wherever anyone could.” This was bad enough, though at least the Walls held. But then came the plague, “and death therewith,” as the

warning had been; inexplicable, unavoidable, and usually fatal, though a man might survive disfigured, maimed, or blind for life, or by some special grace recover, as did Thucydides, "who wrote the history."

Other cities suffered, so we hear, but none so irremediably as Athens. It was not so much the loss of life, though the disease cost Athens her supreme leader, Perikles, as well as thousands unknown to fame, save that it is the portrait of such as they that he had drawn in immortal words only a year before, "showing through what kind of training we won our heritage; in what manner of city and ways of life that heritage has become so glorious; for the institutions we enjoy precluded envy of our neighbours' ways; we are rather a pattern for others, than needing to copy them."

What really mattered was the break-up of old ties, old sympathies, old opportunities of intercourse in the stress and horror of such a crisis; a disease of the soul, clouding the vision as the plague blinded the eye; sapping the judgment and the will, as the hands and feet of its victims lost their speed and deftness; corrupting the fine sense of social obligation which alone made possible what Athenians "called democracy, because it is in the hands not of the few but of the many"—for the "many" were Athenians all. And it is their city, of which the fragments are precious to us, because they are the original handiwork of them; as the work of dramatist and historian was written for them and among them, and has come down to us, preserved through storm and stress because they found it true to the truth which they knew.

Distinguished thinkers, graceful writers and craftsmen, beautiful additions to her series of temples and monuments, Athens continued to produce, or to make her own, in the centuries that followed this turning point of the "Dorian War" and its plague. In the history of Greek achievement they hold high place; but the torch passed into other hands, and revealed other aspects of the world and of humanity; and in the history of Athens they are a supplement. When we speak of "ancient Athens," it is to the "pre-war" city that our thoughts, our dreams, and our regrets go back, in which the Erechtheion was rebuilding, and the Parthenon was new.



BEAUTY OF THE "THESEION" ON THE WEST OF THE OLD ATHENIAN MARKET-PLACE

Like so many of the Greek temples still in part remaining, this, the most perfectly preserved of them all, owes its good fortune to its conversion into a church in the Middle Ages. And yet but little is known of its origin or purpose. As to its date, evidences of style in sculpture and architecture would make it contemporary with the Parthenon, and place it in the fifth century B.C., while with regard to its purpose, it has been universally known as the Theseion from the fact that some of its sculptures portray exploits of Theseus; but the Theseion is now proved to have stood elsewhere. Perhaps the most likely conjecture, based on statements of Pausanias, is one that would make it the Hephaisteion or Sanctuary of Hephaistos.



From a reconstruction by André in "Monuments Antiques."

AS THE ANCIENT ATHENIANS SAW IT: THE EASTERN FAÇADE OF THE THESEION

The so-called "Theseion" is a temple in the Doric order, as may be seen from its unadorned column-capitals, the most easily recognized feature of this architectural style; it is also a "peripteros-hexastylus" with thirteen columns on either side, the length being 104 feet, the breadth 45½ feet, and the height 33 feet. This restoration shows the eastern façade; the sculptures of the pediment are largely conjectural, but the scenes from the Labours of Hercules in the metopes, or oblong spaces seen beneath the eaves, are extant on this frontage.

THE MASTER BUILDERS. VII
SOUTH AMERICA'S MARVELS IN
MASONRY

BY T. ATHOL JOYCE, M.A.

SOUTH AMERICA'S MARVELS IN MASONRY

BY T. ATHOL JOYCE, M.A.

Author of "South American Archæology," etc.

DESPITE all the mystery and romance that have gathered around the name of the Incas, that curious empire of the Andes is a mere affair of last night when contrasted with the dim yesterdays of the ancient civilisations of the East. But much that is usually looked upon as Inca work, standing in the countries where the Conquistadores implanted the more vigorous civilisation of Spain, is in no measure Inca, but pre-dates by ages the period during which that strange people flourished. In the following chapter Mr. Athol Joyce, a leading authority on South American archæology, lightly sketches the work of both Incas and pre-Incas, considered as the master builders of South America.—EDITOR.

THE region of South America which holds the remains of more than one great culture-period consists of the highlands and narrow Pacific slope between the River Ancas-mayu in Ecuador and the River Maule in Chile.

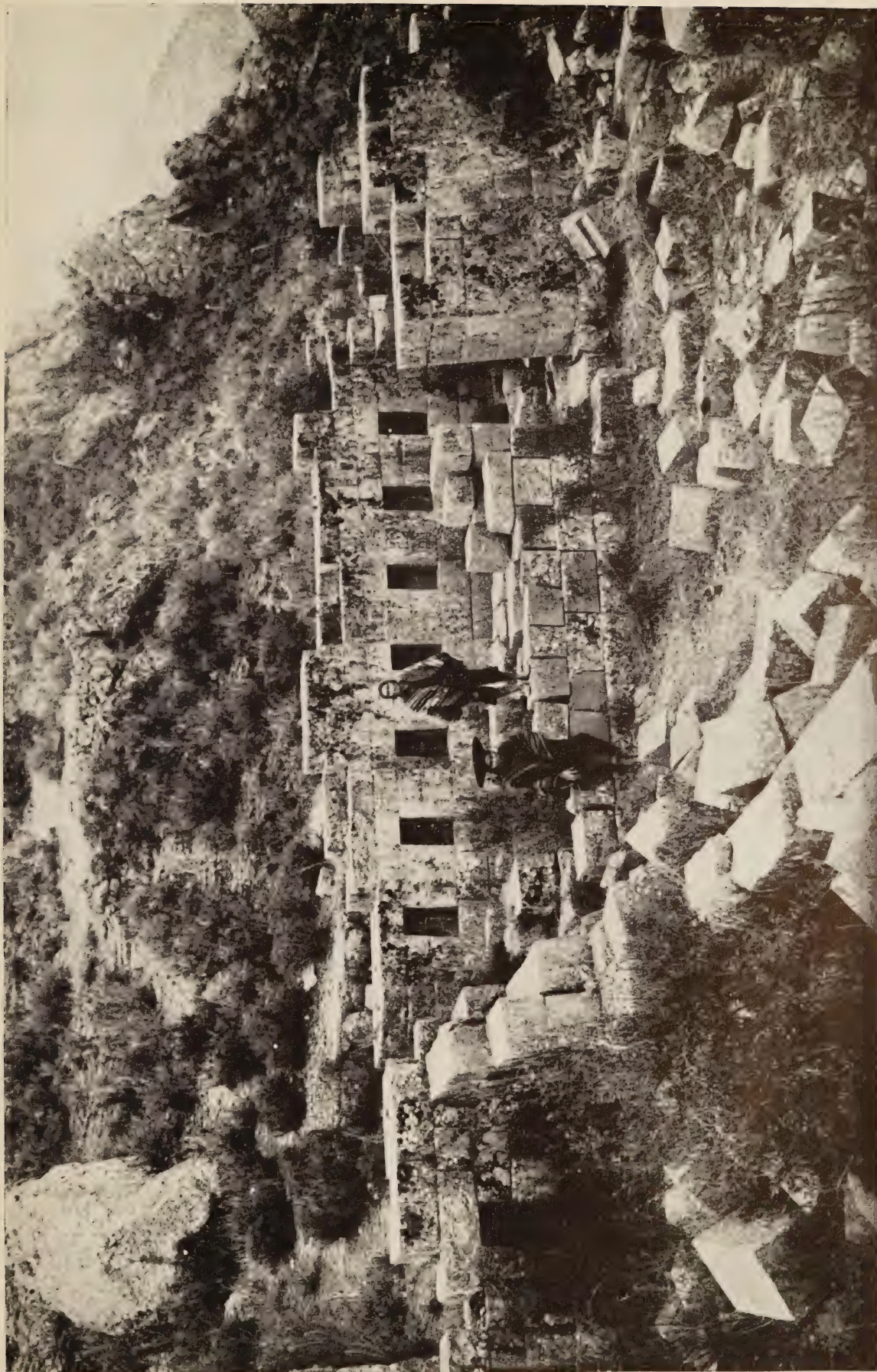
It thus comprises a large part of the modern Republic of Ecuador, practically the whole of Peru, the Bolivian uplands, and the northern extremity of Chile. This was the extent of the great Inca Empire as found by Pizarro in 1533. So remarkable was this state in its detailed organisation, so wonderful the products of its craftsmen, potters, weavers, gold-workers and stonemasons, that all masterpieces of ancient art and architecture found throughout this vast region are to-day popularly attributed to the Inca people.

Yet the Inca only had their beginnings about the year A.D. 1100, when, coming from the south, they settled in the city of Cuzco; and it was not until about A.D. 1400 that they com-

pleted the conquest of the coast. Even Cuzco itself, the capital city of the Inca empire, and now the oldest living city of the South American continent, shows abundant traces of occupation by an earlier race of architects who played with vast masses of stone as though they were pebbles and left behind them structures which seem as enduring as the living rock itself.

Cuzco is a tragic wonder. As you stand upon the Sacsahuaman hill, dominating the city, a strange and moving scene lies spread beneath the mellow Peruvian sky. Clouds hang in the soft blue, and a gentle breeze stirs the barley upon the terraced slopes of the hills. Deep in the hollow formed by enclosing mountains, green-veiled and purple-shadowed, lies the ancient capital, from which you have climbed by narrow cobble-stoned pathways. Every step has deepened the feeling that it is inadequate to say that there are Inca ruins to be found in Cuzco: it *is* Inca, or pre-Inca. Nearly every building is imposed upon the wreck of dignified Inca walls, and in many cases these Inca walls rest in their turn upon the massive blocks of polygonal masonry erected by their predecessors. The fine stone-work of the ancient civilisation mocks the rickety stucco of the intrusive European. Admirably cut stones have been pitched into every cottage wall, and a glance inside any humble courtyard shows the brown-skinned housewife cooking the family meal over a fire sheltered by carved blocks, fashioned in centuries now long dead. Tawdry chapels of Spanish colonial days have been built upon noble Inca foundation-walls composed of squared stones, and, throughout one narrow, dirty lane, the early stone-work rises on either hand from foot-level, to tower high above head-level in simple and majestic lines.

As you climb, you rub shoulders with the "Indians," the veritable descendants of the Inca and their subject tribes. Their dark, heavy, patient faces are set in perpetual sullenness, their eyes subdued; it seems as though these native folk had been oppressed by eternal grief ever since that day when they saw their last divine ruler executed upon a scaffold in Cuzco's main plaza by the omnipotent Spaniard. This quietude emphasises the sense of age, for Cuzco is a hushed city; the Indian voices are low-pitched; there are no street-cars and very little traffic. The passing of mules and llamas—the latter a relic of the dead



NICHES IN THE OUTER WALLS OF THE INTIHUATANA RUINS AT PISAC

At Pisac, not far from Cuzco, the old capital of the Incas, is to be seen a wonderful circular building reminding us by its shape of the great Temple of the Sun with its apse. It was a temple, but it was certainly also used as an observatory for marking the movements of the celestial bodies which were the objects of Inca worship—the sun, the moon and the evening star, as well as thunder, the rainbow, and the like. It is called the Intihuatana, and near by was a kind of sundial—pillars by the measurement of whose shadows it was possible to rectify the calendar. In this photograph may be seen the peculiar niches in the outer walls which are a feature of Inca architecture.



MARVELS OF THE BUILDERS' ART SET AMIDST THE MARVELS OF NATURE

Like so many of the Greek temples, Inca ruins, impressive enough in themselves, owe no little of their imposing effect to the majesty and austerity of their surroundings. Here the circular elíptico of Intihuatana may be seen in the background; behind it, overshadowing and brooding upon it, are mighty mountains, some of the lesser giants of the Andes range which helped to keep the Incas from the conquest of the coast for about three hundred years. The ruins are at Pisac at the head of the Yucaí Valley, or Urubamba Ravine, in which is also situated the wonder city of Machu Picchu; it is a ravine of the Andine chain, and contains the most glorious natural scenery and most impressive remains in the whole district.



IMPRESSIVE TEMPLE RUINS WHERE "THE CHILDREN OF THE SUN" WORSHIPPED THE GOD VIRACOCHA

The Incas, who considered themselves a sacred race and the progeny of the sun and moon, worshipped their "parents," the evening star, the spirit of thunder and the rainbow, together with other gods, of whom Viracocha was the presiding power. This great temple, ascribed to him, is at Racche in the Titicaca district. Here were sacrificed objects most prized by the people—grain, fruits, a few animals, and products of their own industry. It is worthy of note that the Inca temples were never polluted, like those in Mexico, with the blood of human victims.



LIKE A RIVER-WORN CANYON IN LIVING ROCK: MASONRY OF THREE CULTURES IN CUZCO

Cuzco has a claim to be one of the oldest cities in the world, as almost as much of its still standing architecture is ancient Peruvian as modern; the ancient portions, however, seldom extending above the lower courses. But in one narrow street at least, the Callejon de Loreto, the prehistoric masonry towers up to a height of 20 feet or more throughout the whole of its length and on both sides, a wonderful vision of strength and durability. In parts of the town three separate strata may be seen; first a few courses of polygonal masonry, next a layer of Inca architecture consisting of smaller and squared but still beautifully laid blocks, and finally, to crown the whole, some haphazard and flimsy dwelling-houses of to-day.

culture—through the deep and stony ways strikes no modern or incongruous note.

Perhaps the spirit which broods over Cuzco is the spirit of stone; stone in its austerity, muteness, and endurance, because the peculiar genius of the South American architect, who, from the technical point of view, was a better builder than even the Maya of Central America or the Mexicans, led him to achieve his effects by the mass and perfect fitting of his blocks and to dispense with decoration in the form of carved or stucco ornament.

In any consideration of aboriginal American architecture two points must be kept in mind. The first is that iron was unknown throughout the two continents, and therefore all masonry must have been worked with stone tools. It is true that the Peruvians possessed tools of copper, which, owing to accidental admixtures of tin, were, in some cases, bronze. But even bronze is unsuitable for the working of stone, and the blocks used in building must have been shaped with tools of stone. The second point is that these primitive architects were ignorant of the principle of the arch. Their only method of roofing was by using beams, or by building inwards with overlapping courses until the space between the walls could be bridged with stone slabs. As a matter of fact we know, from the reports of the early chroniclers, that usually the roofs of the principal buildings were constructed of thatch, often elaborately worked, and of great density and thickness.

The Incas, especially during the later empire, worked with stone blocks of moderate dimensions, cut approximately to size, and squared. They built without mortar, and the stability of their walls, and their beauty, is the result of perfect adjustment and accurate bonding. Beyond this is the sense of form and proportion which characterises all their edifices, or at least those which survive. Rectangular buildings are the easiest of achievement for the primitive architect, if the principle of the bonding of corners is known, as it was to the Peruvian builder. But the Inca achieved circular and even apsidal buildings of perfect symmetry. The finest of these, as a work of masonry, is the apse of the great Temple of the Sun, the lower portion of which is now incorporated in the church of Santo Domingo. Here

enshrined was the great golden disk which represented the sacred luminary, hidden from Spanish eyes by the Inca at the conquest and not yet discovered. Here, too, were preserved the desiccated bodies of the earlier rulers, sitting enthroned and bedecked in the precious ornaments to which their divine rank entitled them in life.

Another remarkable instance of circular building is seen at Pisac, close to Cuzco, where the remains of a temple and observatory still bear witness to the skill of the Inca mason. The main structure, circular in form, and beautifully built, is known as the Intihuatana. Here were set up the pillars, the shadows of which, measured at noon, enabled the Peruvians to calculate the solstitial periods, and thus to rectify their calendar.

But though the Inca architect aimed at an austere effect, achieved through the massiveness of his material and the perfection of its jointing, unobscured by any form of carved ornamentation, he was apt to relieve the monotony of a long plane surface by a series of blind niches, broader at the bottom than at the top. Such niches are peculiarly characteristic of the Inca period, and Inca doorways are made in the same almost Egyptian form.

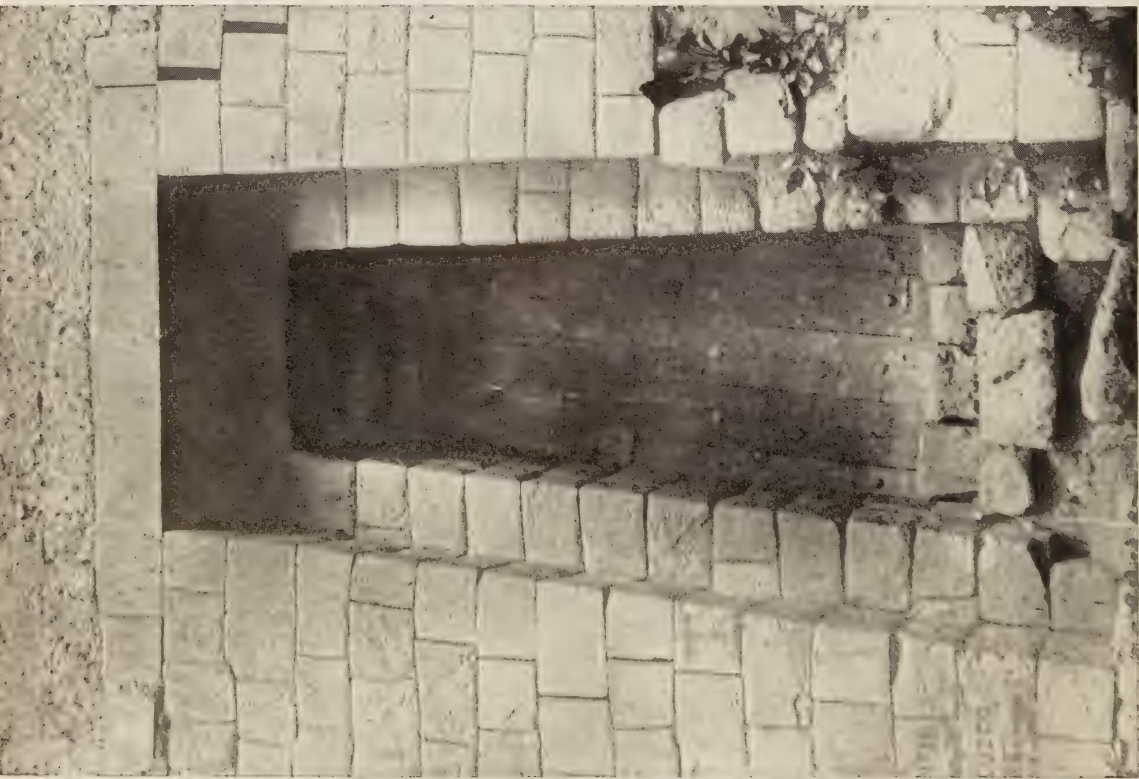
But the pre-Inca masonry is the more marvellous, and it is true to say that no people have played with stone in so facile a fashion as the Peruvians and Bolivians of the earliest cultural periods. The masons of that epoch, beginning, as we believe, in the first or second century before our era, used blocks of any size or shape, keying the one into the other by means of re-entrant angles. Such a process involved enormous labour, because each block was carved to fit one position only. And yet in Cuzco alone there are miles of such work, each joint, after centuries, and despite the action of earthquakes, lying as true as when the stones were first laid, with no mortar to hold them.

Ignorance of the principle of the arch is a serious handicap in the construction of buildings of more than one floor, yet the South American architect achieved the feat, usually by building a lower storey of great solidity, which could support a smaller structure above. The upper structure occupied only a small proportion of the roof-space of the lower, and was therefore fronted by a broad promenade. Buildings of this nature have



THE MARVELLOUS STONE OF TWELVE ANGLES IN A STREET OF CUZCO

With the ancient history of Peru the Incas are indissolubly associated in our minds; but the Incas cannot have ruled for more than about 300 years before Pizarro and his Conquistadores arrived, and some of the most wonderful remains in Peru are indubitably pre-Inca. Such is the inimitable polygonal masonry, which still abounds to-day in the streets of Cuzco—whence comes this crowning example of its class, the famous block of twelve angles and re-entrants, jointed snugly and without mortar to its almost equally amazing neighbours. In the upper photograph is seen another portion of the same wall.



DOORWAY OF AN INCA FORT IN CUZCO

This old fort at Cuzco shows the salient features of Inca workmanship; the blocks are smaller than the polygonal masonry of their predecessors, but they were roughly squared and then dressed on the spot so as to fit in bonded courses with remarkable nicety. The niches in the walls are the only decoration.



Photo by Underwood Press Service.

EGYPTIAN APPEARANCE OF PERUVIAN ARCHITECTURE

Did the ancient Egyptians really influence South Americans as the above pylon-like niche and the doorway also in this page suggest? Or did they acquire their knowledge of the arts from the Chinese, as *one* archaeologist believes? Indeed, the peoples of Peru had much in common with the ancient Egyptians, and like them understood mechanics sufficiently to move huge stones.

been found on some of the islands in the Bolivian Lake Titicaca, which were sacred to the Sun, where temples and "nunneries," the bourne of countless pilgrims, were constructed under the Inca regime. But one building amongst the Inca ruins stands alone. This is the Temple of the great god Viracocha, erected to celebrate the first great Inca victory over the surrounding tribes, a victory which proved the foundation of a great empire. Rectangular in form, with a length of 330 feet and a breadth of 87 feet, it is divided by a central wall which even now stands 40 feet high. It is built of clay bricks, on walls of stone, and the central wall is pierced by numerous doorways with lintels some 14 feet above the ground. Above the doorways was fitted an upper floor, supported by pillars, the stone slabs or wooden joists of which fitted into holes still apparent in the structure of the outer walls. This building is, from the technical point of view, one of the most remarkable in South America. The combination of stone and "adobe" is in itself unusual, while the height, carried up in a perpendicular line, renders it unique.

The growth of Inca power, and the ever-widening extent of Inca domination, were marked by the erection of settlements built in the typical Inca style. Such settlements were, in fact, fortresses, erected at strategical situations which dominated important passes in the mountainous country to which the Incas were bred. Many of these settlements were recreated upon the foundations laid by that earlier generation of stone builders who achieved the early polygonal masonry of Cuzco. Apart from the ruins on the islands of Lake Titicaca in Bolivia, the most important Inca sites lie to the north of Cuzco. The wonderful site of Ollantaitambo, the fortress guarding the Vilcomayo valley, though so closely connected with the last pages of Inca history, belongs really to the pre-Inca period. Machu Picchu is more representative, and is truly one of the world's wonders, as much by reason of its geological setting as its perfect masonry. Even here are traces of pre-Inca work, but the major portion of this wonderful complex, astride a saddle between two abrupt river-canyons, is Inca. Further north still, the hand of the Inca builder is evident at the terraced site of Huanuco Viejo, and even beyond, at many isolated sites as far as Ecuador.

The pre-Inca builders wrought on a larger and bolder scale,

employing stones of all sizes, from blocks weighing a few pounds to huge masses of many hundredweight. But each individual block was wrought to fit its neighbours, keyed in to them by means of re-entrant angles, and so perfectly adjusted that the Spanish conquerors credited the Peruvians with the knowledge of a process whereby stone could be softened, so that it could be cut like chalk. Much of this polygonal masonry survives, eternal, in Cuzco: one celebrated block, with no less than twelve angles, is shown to the visitor in the wall of a narrow street. But the most stupendous example of this class of architecture stands proudly upon the Saesahuaman hill just outside the city. Here is a triple rampart, raised of colossal stones, each wall built in a series of salient angles, from which an attacking force could be taken in flank. Every stone that could be dragged from its place has been taken to serve the uses of the modern population. Yet so much remains; so much has defied the looter, simply because it is too massive, too big, for the strength of modern man to handle; though it was not too big or massive for the early master builders to erect. So it stands, stark and threatening, grey and old, triumphant over time, the work of giants, but little disturbed by the pilfering of modern pygmies.

Other marvels in stone lie all about. As you ride your horse upon the slopes of this sunny, grassy hill, you discover that every outcropping rock has been carved in "seats," steps, and terraces; or channelled with zigzag runnels, terminating in deep basins. Beneath such rocks many burials have been found, and a credible theory holds that the "seats" were the platforms on which were ranged the ancestral mummies at the periodical festivals to the dead; and that the channels served to convey to the august dead the libations of "chicha" (maize-beer) poured out above their last resting-places.

Masonry of the pre-Inca type is found at many sites throughout Peru, suggesting that the Incas, in their course of conquest, followed the footsteps of a previous race of conquerors. Thus, at certain strategic points, guarding mountain passes, the sites of important fortresses in the Inca period, there are stupendous remains of this earlier age. One of the most impressive of these sites is Ollantaitambo, to the north of Cuzco,



AN ARCHITECTURAL MEDLEY AT TIAHUANACO

Above is a typical illustration of the use made nowadays of the building material left by Inca and pre-Inca alike. In the photograph we see a Spanish church built upon prehistoric foundations, and two idols guarding the church door.



STAIRCASE LEADING TO THE KALASASAYA IN THE RUINS OF TIAHUANACO

In the uplands of Bolivia, between La Paz and the great lake of Titicaca, the very home of the megalithic culture of the region, are ruins of what must have been a considerable city—would be now, indeed, were not the railway track and the neighbouring village of Tiahuanaco built almost entirely of its stones. And in the midst of the site is the Kalasasaya, a temple or a palace to judge by its size. Leading up to its pillar-surrounded platform between two standing monoliths is this staircase of monolithic steps.



THE SEMICIRCULAR TOWER, MACHU PICCHU

Some of the most perfect masonry in all the stupendous work of Machu Picchu is in this little flattened semicircle of a tower. Within the tower may just be seen a sacred rock that has at some time been cracked by fire; below it is a cave, part natural, part artificial. The walls are adorned with niches and windows.



DOOR AND WINDOW IN A STONE-BUILT INCA PALACE AT COLCANCHÁ

Inca palaces or "country houses" of the ruling class are to be observed in many parts of the country, although most of the buildings have been so laid under contribution to supply material for modern dwellings that the ruins are extremely scanty. A palace at Colcancha, however, of which this is a photograph, is in a fairly good state of preservation; a door (with a man standing in it) and a window may be seen, the latter being a feature uncommon in Inca architecture except at Machu Picchu.



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NICHES IN THE ORNAMENTAL WALL AT MACHU PICCHU

A wall which abuts on the semicircular tower at Machu Picchu is notable for the beautiful symmetry of the niches in it, those hall-marks of the Inca builders; between each niche is a projecting squared knob of stone. The wall itself is built of specially selected white granite of such fine grain that it gleams like marble.



ANCIENT INCA DWELLING FOR THE LIVING AND THE DEAD

Strange towers, in which the Incas interred the remains of their families, dot the high plateau of Bolivia—part of the ancient Peruvian Empire. The Incas refused to be parted even after death, and in these Chullpas, or Houses of the Dead, the relations of those buried in the lower chamber continued to live despite the gloom and darkness of their windowless abode.



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STUPENDOUS PRE-INCA MASONRY AT SACSABUAMAN NEAR CUZCO AND THE—

In the upper photograph are to be seen the triple lines and mighty polygonal masonry of the fortress of Sacsahuaman, near Cuzco. For a third of a mile these cyclopean lines stretch one behind the other across the top of a neck of land, complete with a defensive system of salients and re-entrants which must have made them almost impregnable; some of the blocks weigh more than 20 tons and stand 20 feet high. Below, a comprehensive view of the incredible town and fort of Machu Picchu and the country, beautiful and terrible, in which it is perched. Won-



—EYRIE-LIKE TOWN OF MACHU PICCHU OVERHANGING THE URUBAMBA CAÑON

derful works are to be found in spots seemingly inaccessible to man, beautifully hewn monolithic stairways climb dizzily about the precipices, and above all stands sentinel the peak of Huayna Picchu. On the left are the laboriously cut and very fertile terraces which served the inhabitants for fields, descending the sheer side of the hill. There is a theory that this was the original home and stronghold of the Incas from which they descended to conquer Cuzco and eventually the whole country.



AN AYMARA GOD WHICH THE INCAS OVERTHREW

There is a trace of the Celestial in the slanting eyes of this little stone god which predates the rise of the Incas; but there is, nevertheless, a strong resemblance between it and the features of this native of La Paz, a servant in the museum of that town, where the idol is housed. In spite of Inca and Spanish conquests, the aboriginal inhabitants have altered but little.

a site intimately connected with the history of the late Incas, but prehistoric in origin. The geographical situation is remarkable, and no better description has ever been written of it than that of the gifted traveller Squier, which runs as follows:

"Their principal works were built at a point where a low ridge extends nearly across the valley. This ridge had been terraced up with high vertical walls, rising from the very bed of the stream on every side to the height of nearly 100 feet. Held by any considerable body of men, it commanded completely the passage of the valley. The river pours with arrow-like rapidity between these terraces and the rocky escarpment opposite, along the face of which runs the narrow and dizzy pathway over which all travellers to Ollantaitambo are obliged to pass. From this point forward for a league the valley is narrowed to a mere cleft between mountains rising in rugged masses, but with almost vertical fronts, to enormous elevations. The brain reels in straining to discern their splintered summits. Dark and chill, this is one of the grand portadas, or mountain passes, of the Andes, leading to the plains of the Amazon, of which the early chroniclers write with undissembled awe. The river looks black and sinister in the subdued light, and its murmur subsides into a hollow roar. The shrubs of broom become scant and small, and their flowers are few and mean. In front rises for ever the white, ghastly Chicon."

In so stupendous a setting it was only a master builder who could construct an imposing architectural complex. But the primitive Peruvian rose to the occasion, and his terraced citadel is worthy of the setting. It rises tier upon tier to the topmost stronghold, the upmost terraces being constructed of enormous slabs, some of which have measurements of 13 by 7 by 5 feet.

The centre-point of megalithic craftsmanship, however, appears to lie outside Peru. In Bolivia, on the high plateau, some 13,000 feet above sea-level, is the dead and destroyed city of Tiahuanaco. This desolate site, its ruins spread over a vast plain ringed by peaks of unexplored mountains, on the borders of the mighty upland sea of Titicaca, is one of the most remarkable megalithic sites in the world. One of the principal features is a kind of rectangular Stonehenge, a vast "plaza," enclosed by series of mighty monoliths and approached by a stairway com-

posed of giant monolithic steps. Within the enclosure still stand a gateway, door-posts, and lintel, cut from a single block and covered with carving, probably representing a ceremonial dance in honour of the god of rain and thunder, whose image is the central feature.

In the neighbourhood the plain is strewn with mighty blocks, accurately carved, tenoned, and recessed, which must be the elements of some great architectural complex. But it can never be reconstructed unless the neighbouring town of La Paz is destroyed and the railway torn up. The builders of the town and the engineers used the early site as a stone-quarry. La Paz was built from Tiahuanaco, and the railway runs on the finely-carved stone-work, now converted to road-metal, of architects of a greater genius.

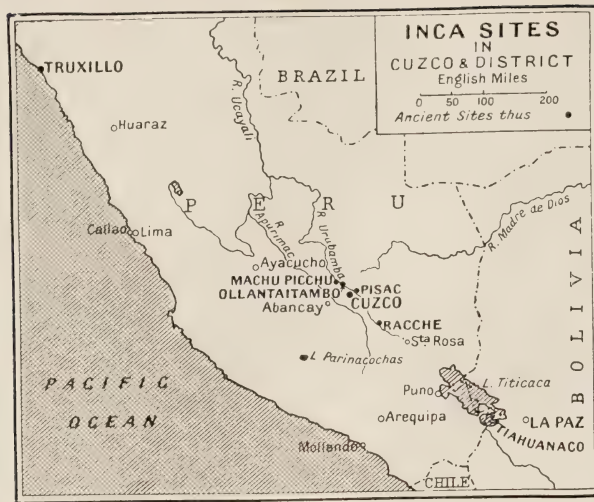
Archæological evidence shows that the builders of Tiahuanaco established a great empire throughout the highlands, and even effected the conquest of part of the coast, but the coast-dwellers, even at this early period, about the commencement of our era, were no mean builders in spite of certain limitations. Stone they had not, but they erected wonderful cities of clay bricks. These cities were extraordinary agglomerations, veritable human ant-heaps. The ruins of Chanchan, near Truxillo, are a case in point. The whole settlement is a complex of continuous building, recalling the "cities" of the Pueblo Indians of North America. Roughly square, it is divided into four "quarters," each surrounded by its own containing-wall. Within each quarter, the chambers adhere one to the other as the cells of a bee-comb, and it is evident that many of the "by-streets" must have run along the tops of the walls. At the great site of Pachacamac, near Lima, the centre of the worship of the great creator-god of that name, was another important city, which maintained its sanctity even in Inca times. The Incas, indeed, insisted on building there a temple to the Sun, their own tribal deity, but the mighty clay-built pyramid, crowned with the shrine of Pachacamac the god, still remained the bourne of countless more conservative pilgrims up to the Spanish conquest.

Apart, then, from the question of material, the early coastal cities are distinguished by their complexity, and by the practice of erecting their shrines on lofty pyramidal foundations. Such



RAIN AND THUNDER GOD ON THE GREAT GATE AT TIAHUANACO

Above is a near view of the god of rain and thunder carved on the lintel of the monolithic gateway illustrated on a following page. The dead and desolate city at Tiahuanaco in Bolivia where this gateway stands is of special interest, as it affords proof not only of pre-Inca art and culture but of pre-Inca empires as well. Though situated in the uplands round Lake Titicaca, there is evidence that its sway extended as far as the dwellers by the coast. And as for the conquest of things material, no more startling proof than the gateway could be desired of the masses its inhabitants hewed and handled with their implements of stone. Yet the extent of their conquests was as nothing compared with the subsequent Inca Empire.



THE IDOL OF THE INCA'S PALACE AT KALASASAYA

This man-shaped idol stands near the palace of Kalasasaya, at Tiahuanaco, and legend says he answered all questions put to him. Both the idol and the valley were therefore called Ramac, which signifies "He who speaks." The idol holds a sceptre with a condor-like head in his right hand, and in the left an object which, many writers believe, represents a number of slate tablets inscribed with the hieroglyphics or pictographic writing of the country.



MONOLITHIC GATE AT TIAHUANACO, ONE OF THE MOST ANCIENT OF AMERICAN MONUMENTS

Surmounting the age-old doorway is an image of the rain god surrounded by little carved figures believed to be performing a ceremonial dance in his honour. It will be observed that a number of these figures have been left uncompleted, and archæologists consider that some tragedy—earthquake or war—overwhelmed the sculptors in the midst of their work. The monolith, one of the oldest in the Western hemisphere, was probably split and overthrown during an earthquake, but it has since been erected on its old site, as the above photograph shows, amid the ruins of Tiahuanaco, where, possibly, it once graced a pre-Inca palace or temple.

pyramidal erections, undoubtedly of very early date, have been found as far north as Truxillo. But they are also distinguished by their ornamentation. The severe style of the highlands relied for its effect upon form and mass. The coastal architect embellished his buildings with moulded ornament in relief, and some of the ornamented walls of ruined Chanchan provide remarkable examples of clay-work. The distinction prevailed even after the Inca conquest. Stone being unobtainable on the coast, the Inca turned to clay. But he preserved his formal tradition. The Inca buildings in the coastal region reproduce the stone buildings of the highlands in all their severity of form and lack of ornament. The only concession is shown in the breaking of a blank space of wall by means of niches, of the same pattern as the stone-built niches permitted by inherited tradition.

Yet the great buildings, of which so many portions survive, the forlorn monoliths, carved with an accuracy of detail which few civilisations can parallel, represent only a small proportion of the labour of the early Peruvian stone-worker. The aqueducts and the cultivation-terraces, the so-called "andenes," though far less spectacular, were only created at the expense of incredible human labour. The Peruvians were an agricultural people (for the herdsmen of the uplands were, on the communistic system, rationed from the plantations), but the crops of inland Peru were grown, for the most part, on mountain-sides so steep that the necessary soil could only withstand the pressure of rain by the support of containing-walls. Hence a system of terrace-cultivation, involving the construction of thousands of miles of masonry, which prevented the precious humus from being washed down the mountain-sides.

The Peruvians of the interior built their country, line upon line of masonry up every precipitous slope, with stairways leading from terrace to terrace. The imagination stands almost paralysed when it attempts to contemplate the extent of human labour by which such a feat was accomplished, but the contemplation of the result furnishes some idea of the astounding perfection of Peruvian social organisation in the early days.

Then the aqueducts: the coast is a rainless area, and even in the highlands an organised system of irrigation was of supreme importance. Water was brought over amazing distances

from far sources in the mountains, and many cities are still supplied by means of stone conduits, the origins of which have been lost and never traced again.

Engineering feats of this description are sufficiently surprising in the interior, but when the coast is taken into consideration they become amazing. On the aqueducts the prosperity of the coast depended. The Inca conquered the highly-civilised coastal population by intercepting the water-supply in the mountains, and the fact that the Spanish conquerors neglected to keep the aboriginal aqueducts in repair provides the reason why many once populous settlements stand deserted in coastal deserts, once green and fertile. Few peoples have handled stone, whether in mass or in detail, with such facility as the South American of the Pacific slope, in spite of the fact that his tools were of the same material. But no people has made so extensive a use of stone, and no people has a greater claim to the title of master builder.

THE ROYAL PALACES. IV
A WONDER PALACE ON A ROCK
BY G. E. MITTON

A WONDER PALACE ON A ROCK

BY G. E. MITTON

Author of "The Lost Cities of Ceylon," etc.

THIS fascinating chapter is one of three in our work dealing with the past wonders of Ceylon, the other two describing the famous Lost Cities and the hardly less notable Buddhist Dagobas. A map indicating the position of Sigiri is given opposite page 499. Sigiri is a great granite boss of rock rising out of the jungle miles from anywhere, upon which in the sixth century King Kasyapa built a fortress-palace whose construction remains a marvel to the modern engineer.—EDITOR.

THE sunset light caught the western face of the giant boss of rock as it reared itself to a height of four hundred feet above the rolling jungle. It brought out the dark red of the granite, streaked black by the soil washed down by the heavy monsoon rains from the overhanging mushroom cap. Even with the naked eye a ragged fringe of growth could be seen on this cap, and with the glasses this resolved itself into sparse trees and stunted shrubs.

Such was my first view of this strange rock-fortress in the midst of Ceylon, the only specimen in the island of one of those scarped cylindrical masses of rock which, rising abruptly with height vastly greater than their area, always compel attention whatever their surroundings.

The rock of Sigiri can be reached by road from Kurunegala station, distant about thirty miles. As far as Dambulla, some eleven miles south-west, the way lies along the metalled trunk road north. After this it forks, one branch going on to the ancient royal city of Anuradhapura, and the other to Trincomalee. We follow the latter for another four miles, then branch off into the true jungle, halting a couple of miles farther on by the pretty but very small rest-house, where a night or

two may be spent under primitive conditions. From the tiny compound of this can be seen the mighty mass of Sigiri, on the summit of which a king built his palace in the sixth century, and from which he ruled Ceylon—or that part of it which was under any sort of rule—for eighteen years.

Kasyapa was the younger of the two sons of King Datu Sena. He rose against his father (A.D. 511), attempted to extort his treasure from him, and finally had him walled up in a rock cell to die of starvation. The elder son, Moggallana, had fled. But Kasyapa knew no peace while his brother lived to take vengeance, and he fled south-west to the commanding rock of Sigiri, distant from the capital city of Anuradhapura some thirty-five miles in a straight line. There he established himself and his court. What Moggallana did meantime, and why he did not seize the government himself, ignoring his brother, the chronicle does not say. Probably Kasyapa carried with him the Sacred Tooth, which was an emblem and signet of the royal power, and could not be withstood.

The work accomplished by Kasyapa's engineers in dealing with the difficult ascent of the rock is a marvel even at the present day. The cap bellies out around the top, and these clever workmen carried up the stages of the mighty stairway exactly at the one point where it was feasible on the northern face. This was in A.D. 511, when Britain was suffering under the invasions of the West Saxons.

From the north side of the main rock, about half-way up, a boss projects, and the top of this forms a large area comparatively level. The ascent began on the west face of the cliff, and was carried upwards by flights of quartzite steps, some of which still exist, though they have been "restored." From the high point to which this carries us, at the "waist" or smallest diameter of the rock, a gallery was made resting on a wall that rose with it, having its base on the part of the rock which spread below. This gallery, running in a quadrant round about a quarter of the rock face, was thus firmly supported, and the supporting wall rose beyond its floor and became a high retaining wall.

The gallery is supplemented by a modern iron bridge at the north-west corner, where the older work no longer exists, having been at this point subject to the violence of the monsoon



SIGIRI, THE "LION ROCK"

Below the summit of the rock is a natural boss, and on its platform, the first stage in the ascent, is the "Lion-staircase House."



Ceylon Government Photos.

WHERE KING KASYAPA HELD HIS COURT

The warm red granite of the rock of Sigiri, streaked with black by soil carried down in the monsoon rains, and the lotus-covered pool in which it is reflected, make it one of the most romantic sights in Ceylon, and the impression on the visitor is deepened when he learns its old-world story of intrigue and battle.



Photo by Frank Burnett.

SPIRAL GALLERY OF THE FORTRESS ROCK OF SIGIRI

The ascent to the Palace of King Kasyapa at the summit of the giant rock of Sigiri was made easy by a great spiral gallery, having short flights of steps, two of which are seen in the photograph. This gallery was protected by a wall about 9 feet high, built on the outer edge, and giving a sense of perfect security to those who made the ascent.

rains. Thus we are carried on to the great northern boss or platform, where was planned and executed the most effective and startling of the conceptions of these great artist-workmen, whose qualities seem to have died with them.

For long the name of the rock had been a puzzle to antiquaries. The Sinhalese derive their name from the word "sinha," a lion, and in the national chronicle, the Mahawansa, we are told that Kasyapa "built galleries in it (Sigiri) ornamented with figures of lions, wherefore it took its name of Sihagiri (the Lion Rock)." But for long the question was, where were the lions?

On the northern platform already alluded to, there was a mass of rubble brick, apparently falling down in an avalanche from the face of the rising rock. As excavations progressed, and the encumbering falls were removed, there was revealed the key to this quaint conceit—the "Lion-staircase House"!

Four enormous claws, about four feet in height, shaped of brick and partly plaster-covered, after the manner of the Sinhalese when they wanted to make enduring work, were unearthed, and by their means it became possible to reconstruct in imagination the form taken by the rest of the fallen brickwork. This must have been the head and shoulders of a gigantic lion, between whose paws ran up the staircase to the king's palace on the summit above. Visitors now ascend this part by means of iron ladders, supplemented above by footholds cut in the face of the rock.

Once the summit is gained, there stretches out a scene of desolation where once stood the palace and citadel of the king. The whole area is about an acre in extent. Tall grass grows amid the brown-red courses of brick which remain. A high ridge runs along the western side of the summit; otherwise the whole surface slopes considerably from west to east.

It is still easy to trace the backbone of the citadel, as a paved way runs from end to end, though broken with steps here and there to fit in to the different levels. From this passages and stairways give access to each side. Steps appear most unexpectedly, and the foundations of the brickwork are set, wherever possible, on the solid rock. The bricks are well baked, of a dark red-brown, and unusually long. They are set in plaster where it has been found necessary to strengthen them to bear

the weight above. Of the superstructure nothing remains; it was probably made in great part of wood that time has destroyed.

The terracing was a special feature of the work. The 1896 Report of the Archæological Survey says:

“That part of the ancient citadel lying south of the pond, and east of the high level strip, was laid out in a series of cross terraces east and west, varying in width and falling away southwards. From the ‘pokuna’ (tank) to the foot of the last staircase at the extreme south are seven or eight distinct terraces. The centre is taken up with an open courtyard, and passages leading to the pond, and round it on either side by stairs and intermediate landings, all admirably planned to suit the physical conditions, and displaying great ingenuity in turning to full account the limited space and surface inequalities of the rock’s summit. . . . On the left, skirting the east edge of the rock, was a range of minor rooms and passages, doubtless communicating with an outermost corridor which almost encircled the citadel. This series of side chambers was continued on to near the south end of the rock.”

The “pokuna,” or tank here referred to, still remains as a marshy lake. It is rock-hewn, and measures thirty yards square. Such a receptacle, filled by the monsoon rains, and supplemented by smaller cisterns, would no doubt form an adequate water supply in ordinary seasons, and do away with any necessity for conveying water from the large lake at the south end of the rock base, up the steep ascent to the summit.

The most remarkable object remaining on the summit, facing the eastern jungle, is the great throne of red gneiss, on which doubtless the king sat to dispense justice or give audience. These kings, we know, were accessible to any of their subjects who claimed the privilege. The throne stands untouched by time, its severe plainness of line bringing out its excellent and unobscured design.

The palace was a world in itself, a labyrinth of passages and corners and store-rooms. In trying to reconstruct the life of this strange epoch, we must remember that the Sinhalese of those days had attained a splendour of luxury and refinement which were not to be found in the British Isles for centuries later. Silken hangings, woven carpets, chambers decorated with festoons of pearls hanging from pillars, and utensils of silver



Photo by G. E. Milton.

BASTION-GUARDED STAIRWAY OF THE FORTRESS-PALACE ON SIGIRI

This bastion was constructed by King Kasyapa's engineers for the purpose of guarding the winding stairway, which was conceived and carried out so that the ascents were led up through the body of a gigantic lion. According to the national chronicle, the "Mahawansa," the gallery was ornamented with figures of lions. Sigiri or Sihagiri means the Lion Rock, but the name remained unsupported by evidence until excavations revealed the remains of the "Lion-staircase House."



Photo by Frank Burnett.

RUINS OF KING KASYAPA'S PALACE ON THE ROCK OF SIGIRI

The work of bygone Sinhalese engineers in providing for the ascent of the rock was equalled by their work in the citadel and palace at the summit, which covered about an acre. Whenever possible, the foundations of the brickwork were set on the solid rock. The superstructure, of which nothing remains, was probably in great part of wood. Tall grass grows luxuriantly amid the brown-red courses of brick, and here and there a few trees, like gaunt spectres of the past, rear their heads above the ruins.



Photo by F. Burnett.

GREAT CISTERN ROCK OF THE FORTRESS-PALACE OF SIGIRI, CEYLON

View taken from about halfway up the rock of Sigiri, showing the wide-spreading jungle from which it springs stretching out towards the sharp cones of Mihintale in the distance. The rounded mass on the left is called the Cistern Rock. In ordinary seasons there was no necessity for the dwellers on the summit to convey water for their needs from the large lake at the south end of the rockbase, the large tank and the smaller cisterns being filled by the monsoon rains.



Photo by G. E. Milton.

THE LION'S CLAWS OF SIGIRI

Half-way up the great rock, in a mass of brick débris, were found remains of the famous "Lion-staircase House." These comprised giant claws of brick about four feet high, partly plaster covered, which once held the staircase that rose through the body up the scarped face of the rock. Their discovery revealed the long forgotten origin of the name Sigiri—Lion Rock.

and gold, were to be found in their kings' houses. Couches, chairs, and even bell-pulls are mentioned as commonplaces of furniture. The sanitary arrangements were efficiently attended to, baths were frequently taken, and perfumes freely used.

Perhaps the most wonderful feature of this jungle court remaining to us are the paintings of the ladies of Kasyapa's entourage. High above the great western gallery, by which the ascent is made, are hollow caves in the cliff face, and on the "ceilings" of these are painted frescoes in colour of contemporary date, representing some score of these ladies and their attendants going to the nearest "vihara" (temple) with offerings of flowers. They are almost certainly actual portraits. They are so inaccessible that for long it was considered impossible to reach them, even with modern appliances, and they could only be glimpsed from below. But in 1889 staging was carried up the rock-face, and a flooring fixed, for the "floor" of the cave is as curved as the "roof." Copies in chalk were made of the details of the colouring with infinite labour and difficulty. Nearly a decade later Muhandiram Perera, now in charge of the ruins at Anuradhapura, whose skill as a draughtsman is well known, was swung up by cables in a chair, 150 feet above the ground, and in this uncomfortable and unstable position made careful copies in oil of the series. He has himself told me of the almost insuperable difficulties he had to overcome. He had to lie on his back on an improvised scaffolding to get a proper view of the originals, and it took him nineteen weeks to complete the task, fighting all the time against cramp and fever (which nearly laid him low), as well as the minor ills of flies and the great bambara bees, who in the first instance had honey-combed the walls with their nests.

Yellow, sienna, umber, green, and so on had to be employed in copying the originals, but no blue. These wonderful reproductions can be seen in Colombo Museum. It is another proof of the weird fancy of the sixth century Sinhalese that such portraits should ever have been executed in such a position. A stranger picture-gallery was surely never chosen. However that may be, its inaccessibility has preserved them; they have survived the bees and mud-nesting birds, and are now covered in with wire netting. The colours are still brilliant.

Here we have, then, twenty-one female figures, three-quarter length, diaphanously dressed, and, in the case of the mistresses, covered with costly ornaments, such as jewelled pins, rings, hair decorations, and many chains in heavy settings. They are usually alternate, first a lady and then her attendant; the flesh of the higher class being shown of lighter or darker yellow, that of the serving-women of a greenish dusky hue, to indicate an alien race. They carry flowers, and are moving in procession northward. The position for the work has evidently been chosen with some reason, for as they march forward through the centuries they are ever going towards the smaller hill of Piduragala, lying some distance northward of Sigiri, where King Kasyapa had built a "vihara," and called it after his two daughters.

The faces of the women are carefully executed, evidently as actual likenesses. The outlines of the figures are full, the almond eyes dark and lustrous. The style is that of the much better known cave paintings at Ajanta in Hyderabad.

Thus we have it on direct evidence that the ladies did, at all events, descend the hill occasionally; whether Kasyapa did, we do not know. But even if he remained in his eyrie on the summit, he had a wide range of interest to overlook. The lake on the south side was evidently, judging by its bund, formerly of much greater extent than now. There are moated islands in it. It may have been a feature of one of those pleasure parks in which the ancient Sinhalese delighted—a park with well-kept sward, with flower-beds, with pavilions and open-air baths, where the air was fragrant with the scent of jasmine, and the eye pleased by the rainbow hues of peacocks and the gay dresses of the crowd worn on festal days.

Hives of workers dependent on that aerial domaine are to be found all round the base of the rock. The remains of huts and shelters in caves are frequent. A great army of artificers, soldiers, messengers, and others was constantly coming and going. Half-way down the rock on the north side is the projecting boss facing the Lion-staircase House. Here, it is surmised, dwelt the nobles and court officials, and others who, while not actually attendants at the court, had yet to be in constant touch with the throne. Their rooms are seen to have been built



Ceylon Government Photo.

ON THE EAST SIDE OF THE LION STAIRCASE OF SIGIRI

Here we see modern Sinhalese engaged in the work of rebuilding the retaining wall of the platform to hold up the remains of the Lion-staircase House built by their forbears some fourteen hundred years ago—one of the engineering marvels of the palace-fortress of King Kasyapa who, having starved his father to death and usurped the throne, lived here for some eighteen years, surrounded by all the pomp and circumstance of the royal state, but in constant fear of his brother's vengeance.

round the edge; doubtless they faced inward to some sort of courtyard.

On the east side of this platform was built a great retaining wall, which held up the mass of masonry employed in building the Lion House. This had fallen into ruin, and threatened to collapse altogether, when the archæological authorities took it in hand and painstakingly rebuilt it with concrete blocks.

There are smaller outcrops of rock, rearing themselves above the jungle all around Sigiri Rock. These can best be seen by looking down from the summit. The most noticeable of them are the Audience Hall and the Cistern Rock near the western ascent. In the Audience Hall remains a stone seat for the king or his representative, and behind it a small round stone, possibly for the umbrella bearer. On the summit of the Cistern Rock, reached by foot-holes cut in one of the rounded "angles," is a beautifully hewn bath or cistern. And all around and about swings up the jungle, rolling like a dark green sea to the far horizon. Faintly in the distance rise the twin peaks of the sacred hill of Mihintale, where the apostle of the Buddha alighted when he brought the religion of Buddhism over from India to Ceylon.

Often must Kasyapa have scanned the distance, as he sat in the cool of the day, and heard the challenges of innumerable jungle cocks, the monotonous note of the coppersmith bird, the belling of the deer, and perhaps the hunting scream of a leopard. Often must he have wondered if he were destined to die on his isolated height, far distant from the city of his boyhood's days.

Whether he descended or not during the eighteen years he reigned there we do not know, but we do know that he descended at last, and met his doom in combat with the justly incensed and patient avenger, his brother Moggallana. The "two armies met like two seas that had burst their bounds" ("Mahawansa"). Kasyapa was completely beaten, and died either by his own or his brother's hand, tragic end to a reign that began in tragedy.

After that the Palace on the Rock was left to fall to ruin, and the great ascents began to decay; but so fine and durable had been the work of the sixth century artificers that even in the nineteenth century sufficient was left to afford some foothold and enable them to be faithfully reconstructed.

THE GREAT MONUMENTS. VI
THE WONDER STONES OF CARNAC
AND STONEHENGE

BY FRANK STEVENS, F.S.A.

THE WONDER STONES OF CARNAC AND STONEHENGE

BY FRANK STEVENS, F.S.A.

Controller of the Salisbury Museum, author of "Stonehenge, Yesterday and To-day"

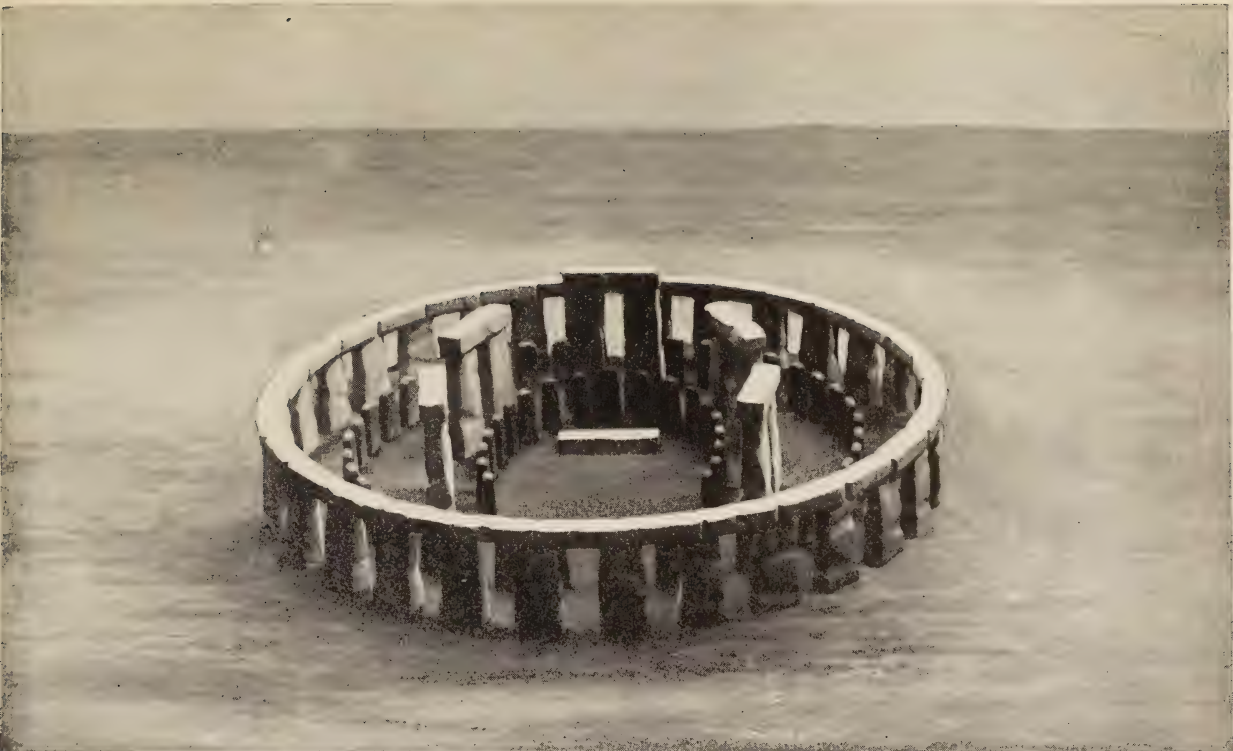
THERE is no more striking feature in the study of the development of human culture than that of "Megalithic Art" or "Heliolithic Culture," which led the ancestors of modern man to erect vast monumental pillars of stone which, defying the elements, and even the destruction of later humanity, remain with us to-day in all their ponderous solidity; presenting to us a thousand questions, theories, and speculations only to be unravelled by the patient labours of the field archæologist. Foremost among these riddles of the past are the Stones of Carnac in Brittany, and that amazing circle generally known as Stonehenge, in the county of Wiltshire.

It is vain indeed to seek for written word which will unveil the secret of their origin, for the builders of these titanic structures have left none; all that remains to tell us of their life, their faiths or beliefs, are their own enduring monuments, their tools, their ornaments, some few skeletons, and the urns containing the cremated remains of their chieftains. A careful study of the map, however, enables us to see the number and distribution of these Megalithic monuments, and reveals the fact that they tend to group themselves into what must have been great ceremonial centres. The magnitude of the undertakings of transport and erection can only be explained by the assumption that man was acting under the strongest force ever known, the stimulus of religion, the same force which first reared the Pyramids of Egypt, or later, the vast cathedrals of Europe.

Two other facts emerge likewise from this study of maps—first, that these stones bear a definite relation to sunrise, either at the solstices or equinoxes; and, secondly, that they appear to be connected with a bygone necropolis, wherein were laid either the bones or the cremated remains of the chieftains and rulers of that distant neolithic age.

Who, then, were these vanished builders? Whence did they come, and what was their object in thus devoting such unthinkable labour and skill to the erection of these lasting monuments? For the purpose of our inquiry we must look first of all to the Mediterranean coast, whence came one branch of the Neolithic race specially notable for its magnificent chambered tombs. Secondly, we must note the Alpine race of Central Europe, first disseminators of a knowledge of agriculture, and with it, as is only natural, the religion of sun worship. If we can conceive a union of these two races in the limited area of Brittany, we at once have the essential conditions for the erection of the Alignments or Avenues of Carnac, as well as the chambered burial places, or dolmens, which cluster so thickly about them. Still following the evidence afforded by the map, it is possible to see that these races further settled themselves in Cornwall and Devon, leaving behind them similar monuments, finally settling in Wiltshire, where they erected the great stone circle of Avebury; and, lastly, Stonehenge, which is in all probability the latest and most elaborate circle of its kind in Britain, and which, like those at Carnac, is surrounded by some hundreds of burial places.

Looking southward over the sheltered waters of the Bay of Quiberon, and bounded on the east by the estuary of the River Crache, lies the present-day village of Carnac; around it on all sides, and stretching for some miles in all directions, are the remains of the Megalithic builders of some four thousand years ago. Taking the road towards the village of Menec, the traveller will see on his right hand the Tumulus of S. Michel. The tumulus is without doubt one of the most impressive tombs in the world, a veritable mountain of rock raised by man, and built into galleries and chambers for the dead. For centuries it stood untouched till the year 1862, when M. René Galle made his first examination of it, with the result that he brought



Photos by S. Sutton.

STONEHENGE AS IT IS, AND A CONVINCING RECONSTRUCTION OF ITS MIGHTY MONOLITHS

Once, as shown in the upper picture, which is based upon a model reconstruction in the Salisbury Museum, Stonehenge consisted of an outer circle, no less than 100 feet in diameter, formed by thirty great monoliths with large lintel stones. Within this circle and concentric with it was another formed of forty small "foreign stones" or "blue stones," within which was a horseshoe of five huge trilithons formed by ten monoliths with their imposts. Within the horseshoe was an inner horseshoe of nineteen "foreign stones" containing as illustrated here a great recumbent altar stone.



SITTING WHERE LEGEND PLACES THE GRIM SACRIFICIAL RITE OF LONG AGO

The detached trilithons in the background are two members of the "horseshoe" formation—the only part where the trilithon proper appears, for it must be remembered that in the outer circle the imposts bridged the uprights so as to form an unbroken ring. On the left is the standing upright of the "Great Trilithon," the centre of the horseshoe, while the titanic block upon which the soldier is sitting is the other upright which fell 300 years ago, and with the impost now lies across the Altar Stone.

to light thirty-nine beautiful ceremonial axes of polished stone, and a superb necklace of "callaïs," a precious stone of unknown source, closely resembling turquoise. Seven of the ceremonial axes had been broken purposely, "to let the spirit out of them," so that the ghostly axe might accompany its owner into the new land whither his spirit had journeyed. Standing on the summit of this huge cairn, it is possible to obtain a splendid view of the Alignments or Avenues stretching away from the village of Menec almost as far as the eye can reach, the finest and most complete examples of their class in the world. There are three distinct groups, those at Menec itself, those at Kermario—"the Place of the Dead"—and those at Kerlescan—"the Place of Burning"—note how the idea of the ancient ritual of the dead still clings to the modern place name. Originally each one of these Avenues of stones terminated in a cromlech, or stone circle, but time and the hand of man have dealt hardly with them; that at Menec, 300 feet in diameter, is now rudely broken by a house and garden. That at Kermario has vanished altogether, while that at Kerlescan is fairly perfect, but not altogether circular in shape.

The first two Avenues, those of Menec and Kermario, run in a direction south-west to north-west; the Avenue of Kerlescan, on the other hand, runs due east and west. There is a very distinct purpose in this orientation, for it must be remembered that the sun rises in the north-east on the summer solstice (longest day), while at the equinoxes it rises in the east. These Avenues would therefore be admirably adapted for festivals connected with solar worship, on the solstices and at the equinoxes; it is, moreover, significant that they are used for that purpose by the Breton peasantry of to-day! Stonehenge has a similar north-easterly orientation.

It is not unusual to speak of these structures as "rude stone monuments"; this term is apt to be misleading. Rough and rugged they may be, but they have the singular quality of being deeply impressive and full of grandeur, particularly when seen when the sun is low on the horizon and each member is tipped with light. The Alignment of Menec is a very army of huge stones, the leaders standing some 10 to 13 feet high and dwindling gradually down to mere midgets only 3 to 4 feet above

ground. The lines stretch for over five furlongs, and doubtless they once extended farther, but unluckily the road to Ploemel has broken through the ranks, leaving only traces in the shape of fallen stones to guide us beyond.

Pushing forward through a plantation, a new and far more imposing Avenue presents itself abruptly. It is the Alignment of Kermario. Striking as is the Avenue of Menec, that of Kermario is even grander, for it is composed of much taller stones. The line evidently at one time commenced, as did all the Avenues, with a group of barrows (burial mounds)—but, alas, only one remains to-day! It is well situated, too, for it runs for some distance up hill, thus showing the stones to better advantage, and on the top of the hill is a windmill, built of blocks despoiled from the serried ranks of the Avenue. One large “menhir,” as the individual members of an Alignment are called, lies prostrate to-day, having been used as a tombstone in Roman times to cover a Gallo-Roman burial. At the end of this Avenue stands the chambered barrow of Kercado—the Place of S. Cado. Here once more there is a break before the commencement of the third Avenue, that of Kerlescan, which starts with the usual cromlech at its western end.

The Avenues alone are a mighty work, but the story of Carnac is but half told when they have been detailed, for chambered barrows and single stones cluster about the Avenues in every direction, and it is no flight of imagination to say that fully one-half of the standing stones in France are to be found in Brittany, more particularly in the region of Carnac. The largest of these “menhirs” lies prone at Locmariaquer, to the south-west of Carnac, broken into four fragments. When standing it must have measured 67 feet high, and its weight must have been little short of 342 tons. In fitting proximity to this fallen giant is the celebrated chambered tomb of Gavv’Inis, without question the most beautiful Megalithic monument in the world. The long gallery buried in the heart of this tumulus is perfectly preserved, and is composed of upright stones supporting horizontal lintels; but unlike most of these graves, the stones used in building the chamber have been most elaborately carved with sinuous patterns composed of lines laboriously cut into the face of the granite, possibly with a chisel of hardened bronze.



A STANDING GIANT IN ONE OF THE LINES OF THE CARNAC AVENUE

This photograph is of one of the taller stones towards the beginning of the Avenue or Alignment of Menec, beyond it on the right stretch the mysterious lines of which it is part, and at whose purpose we may only dimly guess. It is unlikely that these strange monuments were erected in the neighbourhood of 2000 B. C. by a mixed people of which some elements had affinities with the "Mediterranean" race that has left its remains in Corsica and Malta, while others were drawn from the so-called "Alpine" race. This people appears to have led a settled agricultural life, which is an added reason for supposing that their monuments are connected with the worship of the farmer's life, the sun.



LEANING UPRIGHT OF THE "GREAT TRILITHON" BEFORE THE WORK OF RESTORATION

The cromlech of Stonehenge probably owes its preservation to the gigantic size of the blocks composing it, which effectively precluded their being used as building material; moreover, it is situated in a desolate spot. But what with time and the action of rain and sun it was getting into a sadly dilapidated condition before the work of restoration, a stage in which is illustrated elsewhere, was undertaken some years ago. This photograph shows the state into which it had fallen; note the dangerous angle at which the "Great Trilithon" is leaning in the centre of the photograph.



VANISHING PERSPECTIVE OF THE MOST IMPRESSIVE ACHIEVEMENT—

By the shores of Quiberon Bay in Brittany stands the village of Carnac, a village which has given its name to a series comprising some of the most wonderful Neolithic monuments in the world. Stonehenge, no doubt, is a more perfect work—a later work; the technique of cutting and raising blocks had improved; but the vast Avenues of Carnac, stone beyond stone almost as far as the eye can reach, are the product, or feels, of a more spacious ambition. This illustration is of the Alignment called after the hamlet of Menec which lies close by; it starts, as appears



Photo by Tomkins & Barrett.

HELE STONE OR FRIAR'S HEEL

Though connected by legend with an adventure between the devil and a friar, this stone, by virtue of marking midsummer sunrise, is one of the strongest evidences that the cult practised at Stonehenge was a solar one.



—OF NEOLITHIC CULTURE, THE ALIGNMENT OF MENEC IN BRITTANY

to have originally been the case with all of them, with a stone circle or "cromlech," in this instance 300 feet across, but now half obliterated by modern buildings. Thence the lines of stones, eleven in number, run in a north-easterly direction for over 1,000 yards, commencing with giants of 10 and 13 feet, and ending with small blocks no more than 4 feet high. The orientation of the Alignment supports the theory of a solar cult.



RELICS OF A CULTURE 4,000 YEARS OLD IN THE NEIGHBOURHOOD OF CARNAC

Upper photograph: The fallen Menhir of Locmariaquer in Brittany. This giant is the largest "menhir" (single upright stone) known to us; before the fall which broke it into four pieces it was over 67 feet in height. Lower photograph: The "Table des Marchands" in the same district, an example of the "dolmen" type of monument. Dolmens were burial cysts and consisted when complete of a ring of upright stones roofed with a single slab, the whole being covered with earth since washed away.

Authorities have in the past argued as to the relevancy of these patterns, and they still continue to be a matter of debate; they have been likened to finger-prints, but one of the most recent suggestions is that they are intended to be ideographic renderings of cornfields.

The most certain point in connexion with these monuments is their position in the sequence of vanished cultures and races. It is, of course, impossible to give an exact date for any one of them, but they may all be referred without much chance of contradiction to the closing stages of the Neolithic period, about 2000 B.C., and there is likewise little doubt that they were erected by the Alpine race which dominated Armorica (Brittany) at that period. But the Alignment, or Avenue, is not peculiar to Brittany; it is to be found in Devonshire, with its accompanying cairns and circles. Examples may be seen in the "Longstones" on Scorhill, the "Grey Wethers" under Sittaford Tor, and the "Spinster's Rock" at Drewsteignton, all exhibiting the essential features of the Breton monuments, though on a smaller and less magnificent scale.

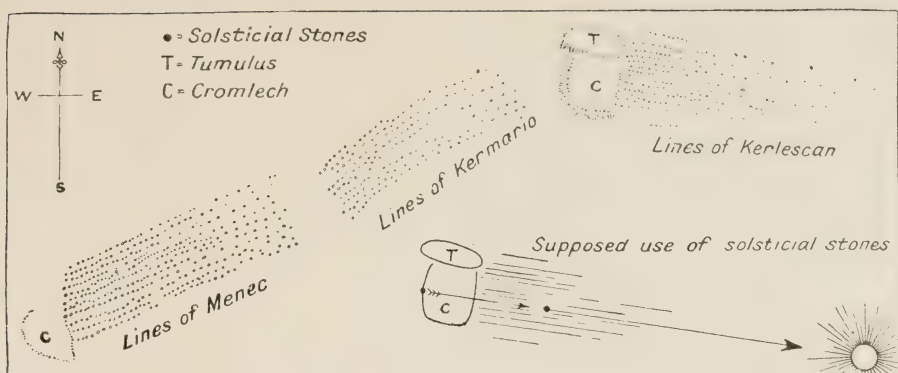
The spot, however, most closely resembling Carnac is Avebury, in Wiltshire. Here it is possible to recognise the early Breton type of circle with its Avenue, while at Stonehenge can be traced the later developments of a similar but more advanced culture. While, therefore, it is possible to see a common origin at Carnac for the circles and avenues in England, there are in the case of Stonehenge certain distinguishing features that set it in a class by itself.

Until quite recently Stonehenge had not been invaded by the habitation of man, and consequently it has not suffered from destructive humanity to any great extent. It is therefore a fairly easy matter to reconstruct the main features of the monument. It comprises a circular earthwork 300 feet in diameter. Immediately within this earthwork once stood a circle of small stones, possibly about forty in number, which have entirely disappeared. The foundations of these stones have been recently explored, and rather more than twenty of them have been examined. What actually became of these vanished stones is at present more or less a mystery; they may, owing to their comparatively small size, have been lifted for utilitarian purposes,

or it has been suggested that the "foreign stones" may have originally formed this outer ring. No definite conclusion on this point has yet been reached. On the north-east the circular earthwork opened out into an Avenue bounded by banks, and the most recent excavations seem to point to the suggestion that these banks were crowned with upright stones, in a manner similar to the Alignments of Carnac.

Standing in the centre of the Avenue and on the axis of the circle is a large unworked Sarsen (local) stone, known as the "Hele Stone" or "Friar's Heel." It is over this stone that the sun rises on the summer solstice. Between this stone and the main monument is a recumbent slab of Sarsen known as the "Slaughtering Stone." There appears to be no valid reason for this name. Careful investigation in 1920 revealed the fact that it had been dressed by hand, like the blocks composing the uprights of the outer circle, from which in point of size it does not seem to differ in any way. A very possible conclusion seems to be that it was in reality an upright for the outer circle that had never been used. Two small unhewn Sarsens, situated inside the earthwork to the south-east and north-west of the Circle of Stones, from their position might have acted as "pointers" for the observation of the sun at its rising on the winter solstice, and at its setting on the summer solstice.

The cromlech proper consists of a ring of hewn Sarsen stones with imposts or lintels mortised to them. This mortice and tenon joint is one of the features of Stonehenge, and is not to be found in other circles. It is worthy of notice, too, since it is essentially a carpenter's joint, such as would be expected from a race familiar with working in wood, and emerging perhaps from that stage of culture to the more difficult art of the mason. The "impost" stones are fitted one to the other by "toggle" joints. This circle enclosed a concentric circle of small upright stones, composed of a rock foreign to the neighbourhood. These are the mystery stones of Stonehenge; twenty-nine are dolerites or diabases, and four are rhyolites. Many localities have been suggested as the home of these "foreign stones." The latest opinion on the subject is that of Dr. H. H. Thomas, of the Geological Survey, who locates the rock in the eastern end of the Prescelly Mountain in north Pembrokeshire, a dis-



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THE SUN IN RELATION TO THE CARNAC MONUMENTS

This sketch-map of the Lines and Avenues at Carnac, besides showing their relative orientation, demonstrates how the same evidences of sun-worship that appear at Stonehenge may be found as well in Brittany. The Avenues, it will be observed, face two north-east and one east; towards sunrise, that is, at the summer solstice and at the equinoxes.

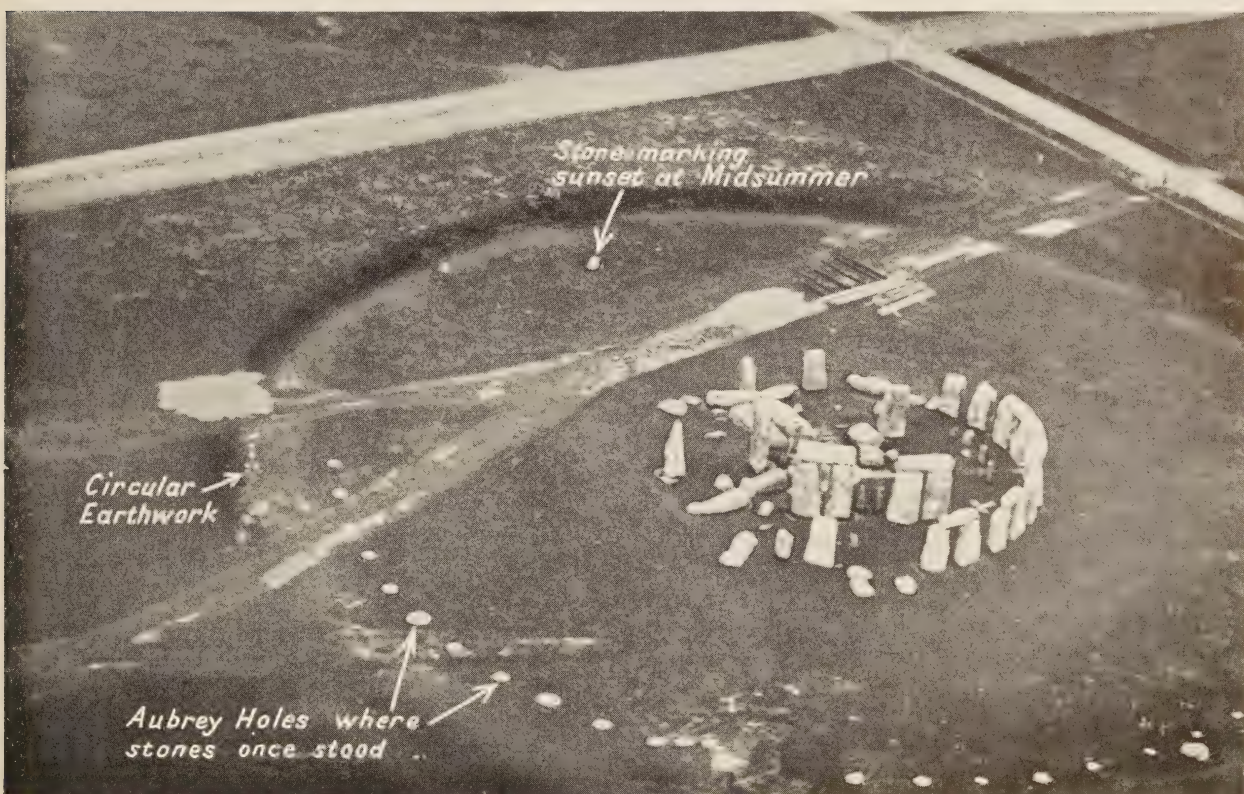
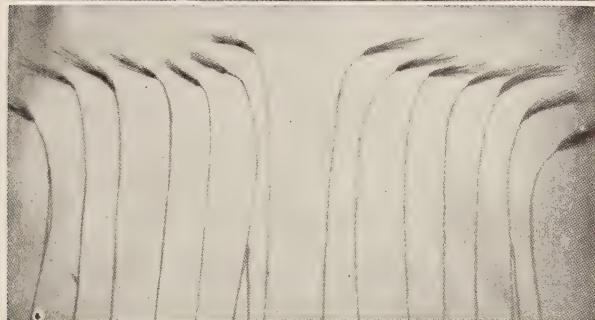
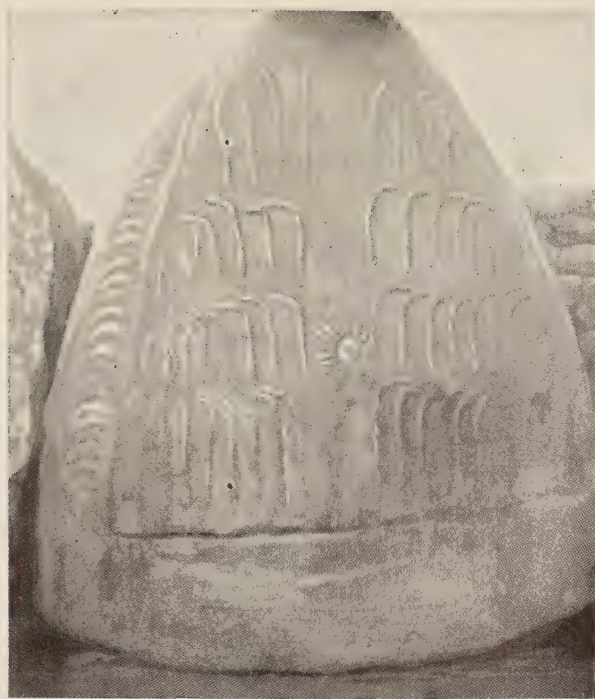


Photo by Edwards.

STONEHENGE FROM THE AIR: A MONUMENT OF LONG FORGOTTEN MYSTERIES

It was a happy idea to take a photograph of old Stonehenge from an aeroplane, most modern of inventions; in no other way could the disposition of its parts be shown so clearly. On the outside may be seen the circular earthwork that girdles the whole; immediately within it are the "Aubrey Holes," sockets which may once have held the "foreign stones" that are now between the outer stone ring and the "horse-shoe" trilithons. The stone in the background marks the midsummer sunset, as the "Hele Stone" marks the midsummer sunrise.



SIGNS AND THEIR INTERPRETATION

On the inside of one of the end supporting-stones of the "Table des Marchands" are certain strange engravings, which according to the opinion of some are intended to represent fields of wheat, with a figure of the sun in the centre. To illustrate this theory a photograph of wheat-stalks is appended with their heads bowed under the weight of the grain.



GRAVINGS IN THE GALLERY OF GAVR' INIS

Other strange markings are to be found on the slabs forming the side walls of the wonderful gallery within the tumulus of Gavr' Inis near Locmariaquer. They take the form of whorls and spirals, so that they have been thought to represent the markings on the human thumb; more probably they are elaborations of the "wheat-field" design.



LIFTING AN IMPOST AT STONEHENGE

To correct the dangerous condition of this trilithon, which with the lapse of time had become seriously out of the true, it was necessary to employ tackle, blocks, and derrick when the impost came to be dealt with. How, then, did the original builders raise such enormous masses with no such modern devices at their disposal?



Photo by Mullins.

MIDSUMMER SUNRISE AND THE FORGOTTEN RITES OF STONEHENGE

A prevalent theory as to the religious significance of the megalithic works at Stonehenge and Carnac sees evidence of an ancient solar cult in their orientation and the disposition of certain isolated stones that may have acted as pointers for solstitial sunrises and sunsets. In this photograph a crowd is shown assembled to watch the sun rise at the summer solstice exactly over the "Hele Stone" or "Friar's Heel," illustrated on a previous page. Two other stones may have marked its setting at the summer and rising at the winter solstice.

tance of 180 miles from Stonehenge. They were certainly brought to the spot by human agency, for the older theory of glacial drift has now been definitely abandoned.

The question will at once suggest itself: why were they brought, when stone could have been obtained from a source far nearer than the distant mountains of Pembrokeshire? The possible reply to this is that the uprights at one time formed a circle elsewhere, and that having thereby acquired a special sanctity were transported in the same way as other stones, and images of conquered gods, under the compelling stimulus of religion.

So far, the circles of Stonehenge, although more elaborate than others, have differed but little in plan from those at Avebury, Carnac, and elsewhere. At this point, however, a new arrangement presents itself. Within the two concentric circles at Stonehenge there formerly stood five large detached trilithons, arranged in horseshoe form, with the open end facing to the north-east. To-day only two of these five trilithons are standing. The central or as it is generally called, the "Great Trilithon" fell in 1620, breaking one of its uprights at the time, and with the impost now lies in ruins on the so-called Altar Stone. Following the line of the horseshoe of detached trilithons is a similar arrangement of the "foreign stones," already mentioned, and in the apse formed by these five trilithons lies the "Altar Stone" amid the débris of the fallen "Great Trilithon." The Altar Stone is a slab of micaceous sandstone which may have come from Somersetshire, or again, following Dr. Thomas' suggestion, from as far away as the north shores of Milford Haven.

It will have been noticed that two of the Alignments of Carnac face towards the north-east, in the same direction as Stonehenge, that is, towards the rising of the sun at midsummer. It is also interesting to note that the Alignments of Carnac terminated at one time in cromlechs, or stone circles. Stonehenge is only the perfected example of this form. Associated with these Megalithic monuments are the burial places (dolmens and barrows) of the vanished race of builders, and the idea of a great temple of the sun surrounded by a necropolis is irresistible. Two-thirds of the burial mounds in Wiltshire lie round Stonehenge, and much the same can be said of Carnac. And similarly

the importance of the contents of these burial mounds is greater in the immediate neighbourhood of these circles than in those at a distance from them. Gold and amber have been found in the Stonehenge barrows, and "callaïs," a very rare semi-precious stone at Carnac; and at both places stone implements of the finest quality together with elaborate sepulchral pottery have come to light. Whatever their purpose may have been, these stone lines and circles remain both at Carnac and Stonehenge as an indisputable fact, and as eternal evidence of the Heliolithic builders' herculean toil.

How was it possible for a primitive people to deal with such problems as the transport and erection of these stones presented? What were their means of overcoming the engineering difficulties? We must presuppose plenty of willing hands, plenty of time in which to accomplish their work, an abundance of strong, tough ropes made possibly of plaited hide, tree trunks for rollers, and rough but useful tools of stone, not the delicate knives and points of the barrows, but ponderous stone hammers weighing fifty pounds or more, flint chisels, and small hand hammers, not particularly well fashioned but admirable for the task. Many of these implements have been discovered at Stonehenge during recent excavations, together with picks made from the antlers of the red deer. Similar implements have been found at Carnac and elsewhere. The mechanical principles involved would call for a knowledge of the lever, but the laws of leverage are fairly well known even to children. In Stonehenge and also in the dolmens of Carnac another problem was the calculation of the foundation necessary for the erection of each stone. In the case of the Great Trilithon at Stonehenge, the two uprights were respectively 25 feet and 29 feet long. In order, therefore, to secure a trilithon 21 feet above the level of the ground, the one stone had to be buried 4 feet, while the other needed a depth of 8 feet to make the two summits of equal height. The same process of calculation would be needed for every upright stone forming the trilithons.

There is one point, however, which remains to-day without any satisfactory solution. How were the lintels or imposts set upon the uprights? There are many suggestive theories as to how this was effected, but here again, as in the case of the



Photochrome.

STONEHENGE AS IT APPEARS TO-DAY AFTER THE WORK OF RESTORATION

The work carried out at Stonehenge was not, of course, wholesale restoration, which would have been in bad taste as well as extremely difficult, but rather preservation, a general strengthening and tidying to prevent the process of dilapidation going any farther. Hence there are no very great differences to be observed between this photograph and the one following. The results of the straightening of the "Great Trilithon" upright in 1901 are obvious, however, it is one of the "horseshoe" group (marked with crosses).

Note the knob or protection at its summit, it is the tenon which once fitted into the corresponding mortice-hole in the impost, a unique feature among such cromlechs

“foreign stones,” there is a considerable lack of positive evidence. Doubtless a day will come when even this secret will be revealed, and that day may be nearer than we think. Each year the riddle of Stonehenge approaches closer to its final solution, thanks to the labours of the expert excavator, who bit by bit is piecing together the shreds of evidence as they come to light, weighing each fact, and estimating it at its true value in the scheme of this, the most impressive neolithic monument in Britain.

THE ROYAL PALACES. V
THE PALACE MARVELS OF PERSEPOLIS
BY LEWIS SPENCE, F.R.A.I.

THE PALACE MARVELS OF PERSEPOLIS

BY LEWIS SPENCE, F.R.A.I.

Author of "Myths of Babylonia and Assyria," etc.

THE plain of Mervdasht, selected by Darius I. of Persia at the beginning of the fifth century B.C. as the site of the great palace-city of Persepolis, is one of the most fertile and pleasantly situated districts in the Persian province of Fars. To-day it is a rural neighbourhood occupied by a cluster of farms and villages, and only the vast level platform on which the King of Kings built his metropolis of pillars remains as a proof of the former existence of one of the most famous cities of antiquity. Not many miles away Lake Miris drains the turbid waters of that almost legendary river the Araxes, a name which appears with such frequency in the pages of classical writers that it seems much more familiar than its modern Arabic title Bend-Amir. This green plain is overhung by a dark mountain-chain of fantastic outline which traverses it diagonally from north-west to south-east, and it was on a rocky spur beneath the shadow of those heights that the imperial Darius constructed the great artificial plateau on which some nameless school of visionary architects raised a series of palaces, that for sheer dream-like loveliness must ever seem to the builder of cities as the dome of Kubla Khan to the poet—a glimpse of that ideal paradise which art must ever strive to mirror, but the exquisite reflection of which it eternally fails to capture, save in vague outlines, imperfect and distorted.

The few tottering pillars which men still sadly call Persepolis seem to the traveller to-day like a leafless and lightning-stricken grove on a deserted plateau. Scarcely a vestige

remains of the glowing façades of the Hall of a Hundred Columns or the Hypostyle Hall of Xerxes, the restored plans of which show with startling clearness whence the Moorish architects of the Alhambra drew their æsthetic lineage. But if those lofty palaces of the Achæmenian monarchs are now wrecks on the shoal and bank of time, they survive in human imagination as an assembled and dazzling picture, eternal and indestructible. The walls of Carthage may have vanished, but they are as impregnable in human poetry as the glorious ramparts of Verdun. Troy is burnt! Then Troy is immortal.

Let us then, assisted by the science of the architect and the skill of the archæologist, as well as by any clairvoyance of the imagination we may possess, try to restore in words the shattered glories of the Persepolis of Darius and Xerxes, those magnificent monarchs who took the world for their footstool, and boasted of their conquests in the crooked letters of that strange cuneiform script which Persia borrowed from the Assyrians. The mighty platform which the architect of Darius designed as the foundation of his enchanted city is in itself a work of imperishable marvel. It forms three sides of a parallelogram, the extreme length of which is 1458 feet, and its greatest breadth 929 feet. The whole was surrounded by a perpendicular wall from 32 to 39 feet in height, according to the state of the ground. The masonry is solid, but shows signs of repair in places, and is almost destitute of ornament. The projecting cornice which topped it has almost entirely crumbled away. On the southern face of the platform four inscriptions vaunt the glories of Darius. In one he invokes the great god Auramazda, in another he enumerates the many tribes and peoples tributary to his rule. Two are written in the Persian tongue, another is in Susian, and the last in the abrupt but yet more polished Assyrian. A road for carts or chariots led from the plain to the platform, winding round its southern face, but the true and more kingly approach to the palace buildings was by the magnificent staircase which still serves as the ascent to this artificial plateau.

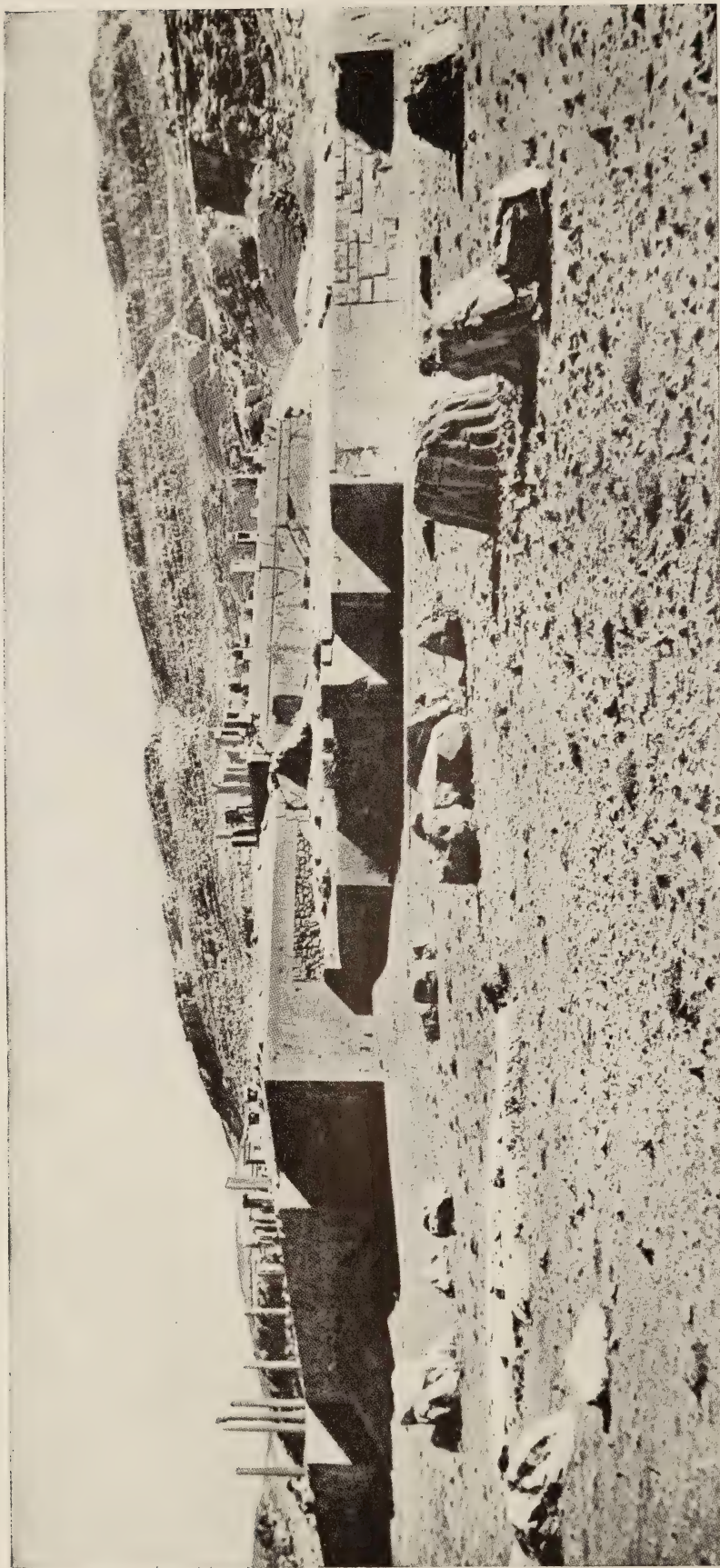
This great processional way of the Persian kings consists of two separate flights of steps parallel with the wall of the platform. Its first flight was reached by a ramp or gentle slope, admirably adapted to the approach of a large body of



After a reconstruction by Ch. Chipiez.

WHAT THE STUPENDOUS BUILDINGS OF THE PERSIAN KINGS AT PERSEPOLIS LOOKED LIKE

This is a half bird's eye view of the mighty 30-foot platform on which the first Achemenids erected their majestic halls and palaces. The graceful pavilion-like structure on the right is the Propylaea of Xerxes, with the wonderful Hypostyle Hall of Xerxes behind it at once airy and massive with its spaced soaring pillars; behind that again is the Palace of Darius with the Palace of Xerxes beyond. In the centre are the leafy gardens where the King of Kings spent his leisure hours—the full-grown palm-trees will provide a scale for the measurement of the buildings. On the left of the Hypostyle Hall stands the supreme achievement of a king who was probably Darius—the Hall of a Hundred Columns.



MAJESTIC REMAINS OF THE WONDERFUL PLATFORM AND PALACES OF PERSEPOLIS

Here we see the principal ruins of that wide platform where rose, outlined against a sky of intensest blue, the white colonnades of the palaces of Darius and Xerxes, and of the beautiful buildings called the Hypostyle Hall of Xerxes and the Hall of a Hundred Columns—so beautiful that before them Alexander and his far-travelled companions stood amazed. On the right is the hollow, lifeless shell of the Palace of Darius, and on the left some of the columns of the Hypostyle Hall, which many consider the largest and grandest ever built by man before the use of iron put new resources at his disposal. And in front, not least of all the marvels of Persepolis, is the sheer side of the supporting platform.

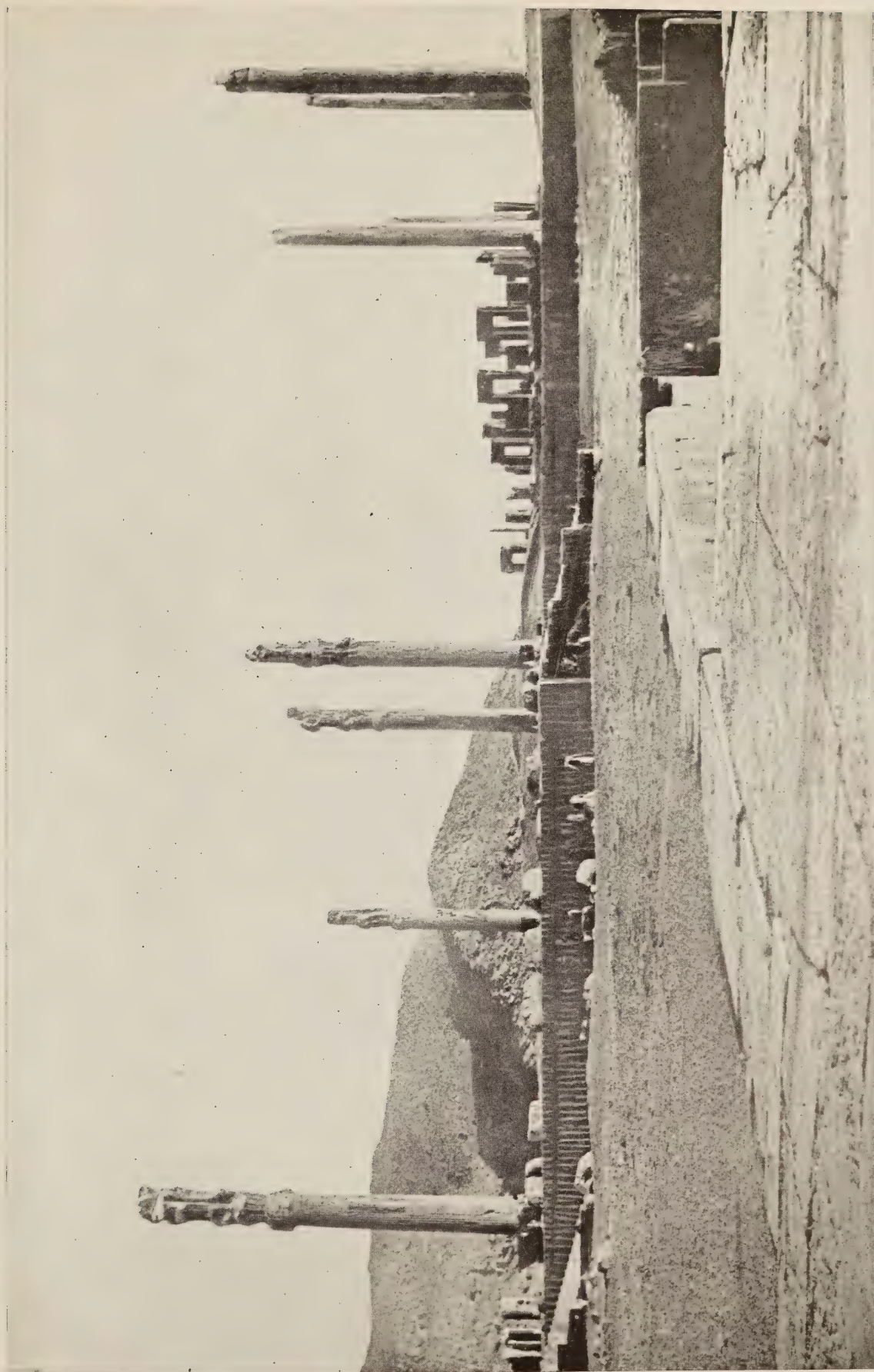


Photo from Sir Percy Sykes' "From Isfahan to Shiraz, 1916."

SOARING PILLARS OF THE HYPOSTYLE HALL OF XERXES, WITH THE PALACE OF DARIUS BEYOND

In the background are the ruins of the dwelling-place or Palace of Darius, seen silhouetted against the sky between the few remaining pillars that once upheld the Hypostyle Hall of Xerxes like a forest of stone. Faintly seen on the supporting platform of the hall are the carvings and reliefs that encrusted it. The "well" on the right is a re-entrant in the main platform containing one of the staircases by which it was negotiated; against the secondary platform of the hall are other staircases. Note the almost Greek proportions of some of the pillars.



Photo from Sir Percy Sykes' "From Isfahan to Shiraz, 1916."

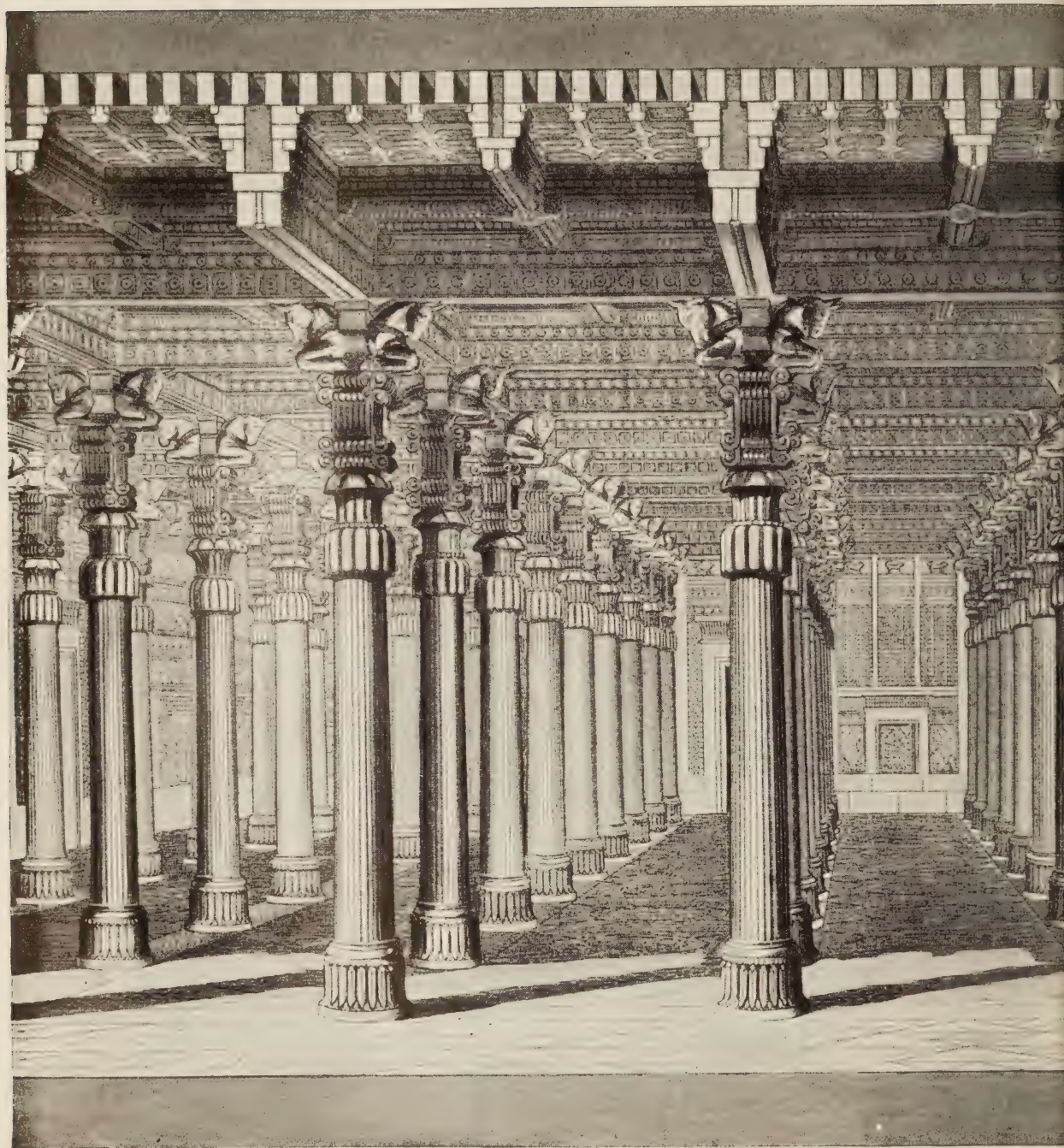
IMPOSING RELIC FROM THE HALL OF A HUNDRED COLUMNS

A favourite theme of Persian sculptors was to depict the king, with all the attributes of royal dignity, as though coming out of his palace to meet a procession of his subjects, either loaded with offerings or about to discharge the duties of their office. He is preparing to expose his august head to the light of day so that a fan would be inadequate protection; a second attendant therefore presses forward to cover and shelter him with a large umbrella.



PERSIAN KING AT THE "ENTERING IN OF THE WAY"

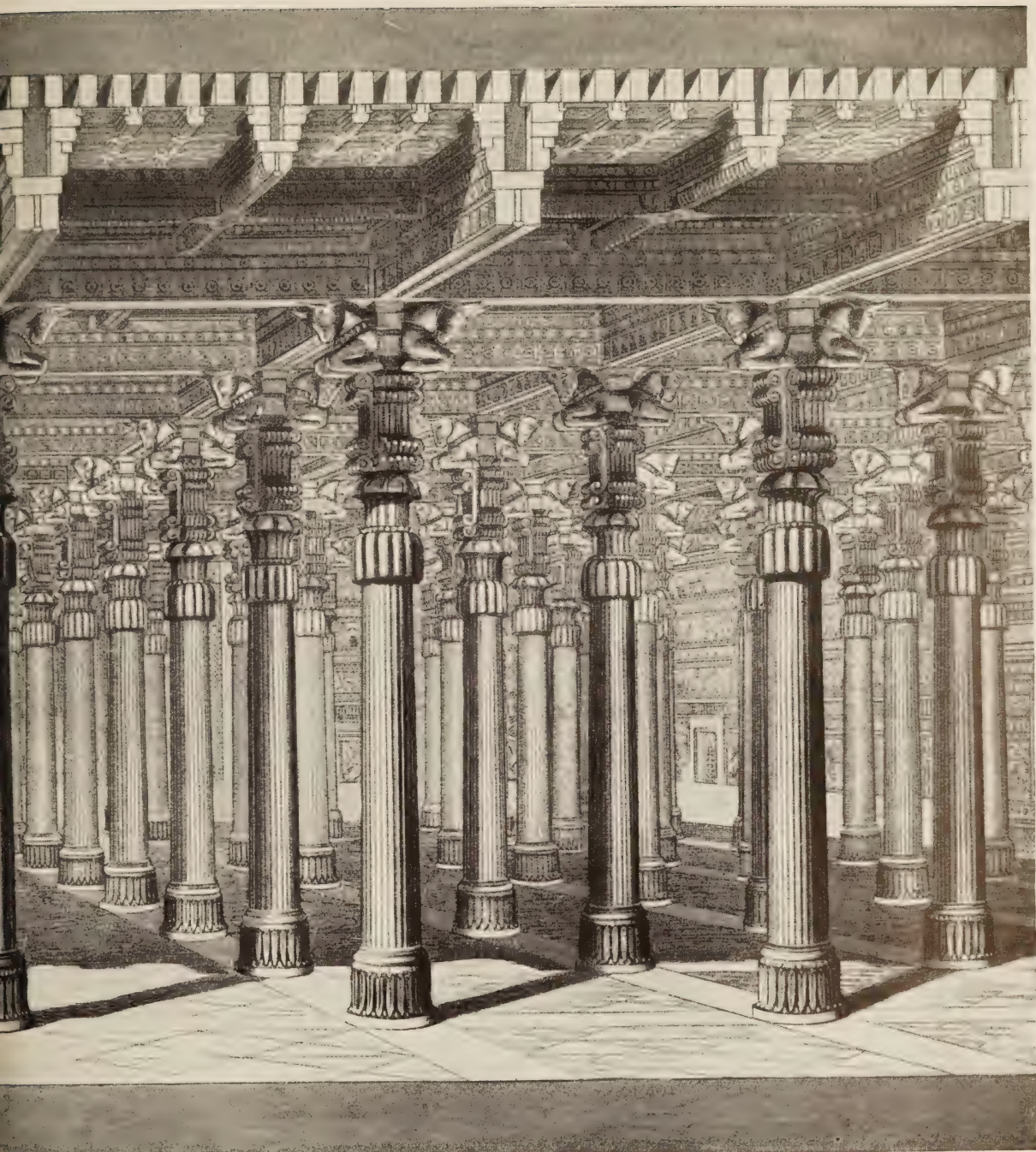
On the inner face of this doorway may be seen a Persian monarch seated on his throne, with an attendant standing behind him; below there is a procession of his subjects, and above, the Persian god Auramazda (or Ormuzd) presides over his royal counterpart from within the conventional winged disk in which he is always portrayed.



After a reconstruction by Ch. Chipiez.

RESTORED HALL OF A HUNDRED COLUMNS AT PERSEPOLIS—

In this imposing structure, sculptor and architect have joined hands in impressing upon the mind an idea of the power and quasi-divine majesty of their lord and master. And whether he was Darius or Xerxes, the proportions and magnificence of the Hall certainly enabled him to show himself to his subjects with a majesty and in a setting befitting a monarch whom so many millions of men obeyed from the banks of the Indus to the borders of the Ægean Sea. In shape the built surface is a parallelogram about 77 yards from east to west, and about 99 yards



A VISIBLE EXPRESSION OF GRANDEUR, WEALTH AND POWER

from north to south. Excepting Karnak in Egypt, it is said that there was no building in the ancient world which enclosed so vast an area as this; whose roof was upheld by so many pillars; or the splendour of whose decoration was in better correspondence with the enormous dimensions. There are evident traces that the royal house which Alexander burnt down at Persepolis, urged thereto by the courtesan Thais, must have been the Hall of a Hundred Columns.



A KING ENTHRONED ON THE WALLS OF THE HALL OF A HUNDRED COLUMNS

This photograph pitifully illustrates the effects of slow detrition and sudden conflagration, senseless destruction and all the cruel accidents of two and a half thousand years. The Hall of a Hundred Columns was one of the most wonderful buildings in any country and of any age, yet this was no protection against time and fanaticism. It has disappeared, but on the shattered masonry-piers of its doorways may still be seen reliefs of the Great King, King of Kings, enthroned above his subjects, recalling vanished splendours.

people. There are in all a hundred and eleven steps in the staircase, and the gradient is so gentle that Arab writers assure us a horseman could ascend and descend it without difficulty. The whole was founded with consummate art on a rocky promontory.

The floor of this platform shows evidence of the former existence of four distinct planes. The lowest of these, as regards elevation, seems to have been unbuilt upon. The second is that which abuts upon the grand staircase, and occupies nearly two-thirds of the whole area. Here stood the Propylæa and the Hall of a Hundred Columns. Behind this site is the level which supported the Hypostyle Hall of Xerxes, and again to the rear of this is the terrace on which were erected the palaces of Darius and Xerxes, his son. Here, too, are to be seen the great conduits which supplied the palaces with water drawn from reservoirs on the slopes of the overhanging mountains, and the drains, still covered with a thick layer of mud, designed to carry off the heavy rains which must occasionally have drenched the flat timber roofs of the great buildings and poured off in streams.

Strabo and Diodorus have both given us descriptions of Persepolis, the first a scanty and vague account, the second a more precise picture, but by no means compatible with the archæological evidence. The palace was without fortifications. Its situation alone sufficed for perfect safety—or so it seemed to the sublimely confident Darius who, like all truly great men, was oblivious to the very possibility of failure or defeat.

The Propylæa stood at the head of the grand staircase. Its remains, sentinelled by winged monsters in the style of Assyrian architecture, are the first to confront the traveller who climbs that gentle gradient. Two vast piers of masonry, 34 feet high and hewn from large blocks of limestone, form a description of passage beyond which rises a pair of slender columns, whose graceful symmetry irresistibly recalls that of the Corinthian model. Beyond these stands another pair of pillars similar in design, and twin gigantic bulls guard the rear entrance. The Propylæa thus composed two great portals or entrances to the platform, a kind of gigantic guard-house or pavilion, massive in front and rear, but graceful at the sides as a Grecian portico. Indeed, it seems clear that the nimble

Persian mind caught and wedded together the more graceful Hellenic and the heavier Assyrian architectural styles in this composite structure, which also bears the unmistakable stamp of Egypt—a strange mingling of the three great architectures of the ancient world by the energetic genius of a younger and more eclectic race.

Between this great canopy in stone and the noble Hypostyle Hall, there stretched in the days of Xerxes a paradise of delightful gardens, watered from a great reservoir excavated in the living rock. Here the king had his pleasure in the cool of the evening, and from its paths, which crossed in diamond fashion the radiant parterres, could gaze backward at a scene no less brilliant, a garden in painted stone, flowerbeds in living colours, the memory of the reds, greens, and magical yellows of which must surely have inspired the later story-tellers of Arabia and the East with many of their glowing descriptions of enchanted fairy palaces.

What Persia has achieved in colour, surely only the Genius of Art who records such triumphs could tell. But when colour in its most tender and entrancing shades is matched with the elfin beauty of Oriental design, as in the Hypostyle Hall of Xerxes, we feel that these sages of the East which tell of the creation of dream-like palaces by supernatural beings were in a manner justified. Here stood a marvel in stone which the untutored peoples who followed on the evacuation of Persepolis could not account for otherwise than as the work of jinns. From a base carven in likeness of a processional triumph, the struggles of lions and the deeds of Auramazda, rose a series of richly fluted columns crowned at the capitals by double-headed bulls which, in Caryatid form, upheld a light and wondrously fretted entablature. From between the pillars hung curtains of that embroidery which even to-day demonstrates the peculiar cunning of the Persian hand to capture and make manifest the unearthly hues of dreamland. Behind this rich frontage were gathered group upon group of pillars so magnificently adapted to the general effect that, though the central mass is square, the substructures which surround it at intervals give one the impression of that sublime irregularity seen in a grove of noble trees, that natural harmony which is always so much more enchanting than



After a reconstruction by C.B. Clappes.

FAÇADE OF THE PALACE OF DARIUS AT PERSEPOLIS BRIGHT WITH COLOUR, MOVEMENT, AND LIFE

is, precious metals, ivory and gleaming enamels, curtains of brilliant colours, mingled their hues into a surpassing harmony that was the Palace of Darius. In front of the main gateway, as it gives coolness to the air. In the background is another building, and behind the fountain a flight of steps giving access to a third: the latter is the Palace of Xerxes, and the other the Hall of a Hundred Columns. In the flanks of the hillside in the far distance may be seen one of the rock-hewn tombs of the Persian kings.

mere uniformity. This Hypostyle Hall in its heyday was a fairy forest in stone, an architectural Broceliande, labyrinthine, umbrageous, a carven grove painted in the hues of an undying sunset. Ever mighty in art through the centuries, the race who fashioned this marvel of unexampled loveliness conquered and displaced at one essay the squat and plantigrade traditions of Assyrian architecture, and indicated to the future the way to an emancipated beauty in palatial construction.

The Hypostyle Hall was surrounded on three sides by colonnades of pillars, each of which was 65 feet in height. The Arab population of the plain has denuded it almost of its last stone. Only some twelve poor pillars or fragments of pillars remain, the last broken trunks of that amazing forest of masonry. We know it chiefly from the wonderful restoration of Charles Chipiez. That it was by far the most imposing building in Persepolis is witnessed by the wealth of ornament which overlaid the stairs that approached it, by the lofty magnificence of its colonnade, and the extent of the ground it covered. Its purpose was evidently that of a reception hall, and it seems clear that it was divided up into sections to be occupied by the several castes or classes in the court life of Persepolis. There were no enclosures between the central and other colonnades, but a balustrade the height of a man's breast sufficed to keep the less distinguished guests at a proper distance from the throne, but not at such a distance that they were unable to see the monarch, or to obtain a good view of the proceedings.

The gorgeous roof of the Hypostyle Hall merits brief description. It was of cedar with a facing of enamelled brick or faience, bronze, and ivory. The metal plates which capped the ends of the wooden joists protected them from rain and rot, and bronze rosettes set in iron clamps gleamed and glittered among the intervals of the paler ivory and shining enamel. Such wood as was visible was lavishly adorned with paint, and as this was not mixed with oil, it was found necessary to renew it very frequently. The wood-panelled ceiling was arranged in compartments which broke the monotony of the mass and added to the richness of the interior. The centre or canopy beneath which the king sat was thickly inlaid with plates of gold and silver. When we remember that iron, though well known for weapons

and tools, had not as yet been made use of for the purposes of building construction, our wonder at the extraordinary achievements of Persepolis widens into amazement. But as regards site, unity of plan, and variety of detail, the happy contrast of the massive platform and the rich and airy pillars, the rhythm and mingling of curved and straight lines, and the delicate vigour of the whole conception and creation, the Hypostyle Hall built by King Xerxes must be regarded as the last and crowning triumph of the Age of Bronze.

The Hall of a Hundred Columns occupied the centre of the platform, and bore a certain resemblance to the Hypostyle Hall. It covered a space of 21,073 square feet, but its plan was more simple and has been more easily restored. Only one of all its hundred pillars remains. In shape it was a parallelogram, about 230 feet long from east to west, and 296 feet long from north to south. The principal façade abutted on the north side, as is shown by the two great columns flanked by gigantic bulls which resemble those of the Propylæa. Two immense portals opened upon the pronaos, which was supported by pillars and decorated with mural paintings, chiefly of mythological figures. And there were extra exits to facilitate the outflow of a crowd, just as may be seen in a modern hall or theatre.

Within, the floor shows the traces where stood the hundred pillars from which the hall has taken its name. These shafts were distributed in rows of ten, and upheld the roof of a square hall. The entrances were without doors, veils or curtains taking the place of these. The space within was so thronged with pillars that they must have seriously interfered with any spectacle or court function held therein. From about the middle of the wall, a panelling of cedar, walnut or cypress was carried up to the architrave. The lower portion was hung with tapestry. With the exception of the great temple at Karnak in Egypt (see illustration facing page 198), there is no building of the ancient world which occupied so large an area as this, or presented in its interior such a picture of magnificence.

This hall, like the Hypostyle Hall, was also an audience-chamber, a species of throne-room. Indeed, the two structures bear a remarkable resemblance one to the other. But differences certainly existed. The Hypostyle Hall rested on a plat-



After reconstruction by Ch. Chipiez.

LOFTY SHAFTS AND SHADY COLONNADES OF THE HYPOSTYLE HALL OF XERXES

The Hypostyle Hall of Xerxes, of which this is a reconstruction, served as a throne-room or hall of audience; it was open to the air all the way round, but the spaces between the columns could no doubt be closed with gorgeous hangings on the sunny side. Detached colonnades surrounded it on three sides, the style of the pillars being slightly different from that in the body of the hall; they were all, however, crowned with the double bulls' head capital, and their height was 65 feet.



ASSYRIAN BULLS AS ADOPTED IN PERSIAN ARCHITECTURE

This illustration shows the opposite (or inner) façade of the Propylæa of Xerxes to that on another page. The great winged, human-headed bulls were a legacy to Persia from Assyrian art, and as at Nineveh were disposed at the doorways of palaces; note, however, that the "extra leg" has been discarded. Xerxes I., who built the Propylæa, was the son of Darius I., original founder of the Persepolitan palaces and first of the Achæmenid kings. He continued his father's work on even more ambitious lines.



APPROACH TO THE HYPOSTYLE HALL, AND MAIN PLATFORM-STAIRCASE

Above, the approach to the Hall of Xerxes, whose pillars may be seen in the background; the reliefs show subject peoples bringing tribute to the king. Where buildings are constructed on different terraced levels, and they in turn on a platform high above the ground, staircases and approaches are bound to be a problem, and the Persian architects adequately solved it. Below, the successive ramps of the grand entrance-stairway to the great platform; on the right may be seen the Propylæa of Xerxes.



From "History of Art in Persia," by Perrot and Chipiez, published by Chapman & Hall.

DOORWAY OF STONE IN THE PALACE OF DARIUS

The rooms within the Palace of Darius were rich with decoration, and the great central hall was surrounded with niches and approached by mighty doorways elaborately sculptured with figures of the King of Kings, his subjects, and his god Aouramazda. This illustration shows a doorway whose stone has endured while the surrounding brick has vanished.

form, whereas the Hall of a Hundred Columns is on the flat, and carven ornaments cover practically every inch of its walls; whereas the ornamentation of the Hypostyle Hall is confined to the basement. The one is an open pavilion, the other a walled edifice. The Hall of a Hundred Columns was probably the older, the less complex, and its pillars are not so lofty—a sign of greater antiquity. Nor were its sculptures so fine as those of the Hypostyle Hall, which was probably used as a summer reception pavilion, while the sheltered aisles of the other seem to have been more suited to levées during the rainy season.

To Darius I. (522-486 B.C.) and his son Xerxes I. (486-465 B.C.) are due, if not the foundation of Persepolis, at least the consummation of its greatest glory. Darius, son of Hystaspes, firmly established himself on the throne on the death of Cambyses, and, acting with extraordinary energy, succeeded in quelling rebellions in Babylon and other tributary states. On the rockface of Behistun, in Kermanshah, on the road from Babylon to Ecbatana, he has left us sculptural portraits of himself and the rebel leaders he subdued (see illustrations facing pages 470-475). He caused Greece and Egypt to tremble, but still in his brief leisure contrived to raise his capital of Persepolis to heights of magnificence until then unsurpassed. His son Xerxes, during his short reign, was no less active in the work of embellishment. The dwellings in which these great kings passed that part of their lives which was not occupied with war or conquest stood on the southern side of the platform. They were four or five in number, and differed slightly in dimensions and arrangements. The Palace of Darius is situated on a platform some seven feet higher than the level on which Xerxes later erected his great hall. Approach was gained to it by four ramps or inclines held by retaining walls richly sculptured. A portico supported by eight pillars arranged in two rows led to a hypostyle hall of sixteen columns, and its remains present a very fair idea of what the building was like in the days of the great kings. It would at first sight seem to be a reduced copy of the Hall of a Hundred Columns. But a number of rectangular chambers help to fill its space—guard-rooms, living-rooms, sleeping-chambers, doubtless. All of these face the central hall, so that the heat and dust of the plain might not trouble the

royal occupants. The entrances to the greater rooms looked down the spaces between the columns, and did not face them, as did the minor apartments. The central hall had few pretensions to magnificence, but made up for the lack of this in elegance and beauty of design. Precious metals, rare woods, ivory and faience, and the wonderful weaves from the Persian looms harmonised to form no unworthy background to a royal existence.

After the two great throne-rooms or pavilions, the Hypostyle Hall and the Hall of a Hundred Columns, the Palace of Xerxes was the largest building on the esplanade, with a ground surface of about 6,900 square feet. It bore a close resemblance to the Palace of Darius, but was on a larger scale; its chambers were more spacious, and in some cases their roofs were supported by pillars. So that there might be space for a broad terrace in front, the building was set back as far as possible, till its central hall hung over the very edge of the southern terrace. It was approached in front by several flights of steps, and its façade, instead of being carved with the usual mythological figures and legendary motifs, displays a more "modern" tendency by the substitution for these outworn themes of scenes from the life of the palaces. Trains of attendants and eunuchs are depicted, carrying ewers, napkins, and perfumes, a striking commentary upon the growth of luxury in the reign of Darius. This palace is the only one which faces north, probably because Xerxes had grown dissatisfied with his father's house, which was extremely exposed to the merciless sunshine of Fars. But few of these buildings are in so utterly ruinous a condition as the Palace of Xerxes. The modern restorations of it show its interior as a pillared hall having extensive living-rooms on either side, saloons, sleeping-cubicles, and guard-rooms for the various officers of the army stationed at Persepolis.

At last Persepolis fell—Macedonian, Seleucid, Parthian, and Sassanid swept over it in succession, not well knowing the wealth and wonder of that which they destroyed. The halls burnt at the whim of Thais, the light o' love of Alexander the Great, fell into blackened ruin. Those that she spared, shaken and neglected, soon perished through the falling in of their heavily timbered and over-ornamented roofs; the runlets from



SPEARMEN IN THE PALACE OF DARIUS

A further panel on a doorway in the Palace of Darius shows two Persian spearmen of the period; it has been partly protected by its position, and its clear outlines are eloquent of the impetus imparted by the Persians to the art of the country they conquered. Such military subjects are typical of the home of Darius, and distinct from that of Xerxes where more luxurious scenes from palace-life are portrayed.



MYTHIC COMBAT OF A PERSIAN KING

A symbolic scene showing the king in conflict with one of the winged, lion-headed, one-horned, eagle-footed demons that the restless brain of Chaldea first conceived; from the Palace of Darius at Persepolis. As in Assyrian art, the human frame is always draped, but in spite of this handicap the Persian sculptor has learnt to impart greater freedom and vigour to the human subject than his predecessor.



ROYAL POMP AS MURAL DECORATION AT PERSEPOLIS

A relief on a solitary pier of masonry rising from the great platform at Persepolis shows an Achæmenid monarch emerging from the doorway of his palace followed by two attendants, one of whom bears a fly-whisk and the other the state umbrella. It will be noticed how much freer from inscription are the Persian sculptures than those in Assyria, where the bands of cuneiform lettering often ran across figures and background alike.



THE PROPYLÆA OF XERXES

These two great piers, standing about 11 yards high and carved in deep relief with two bulls in the Assyrian manner symbolising power, are the principal remains of the monumental entrance built by Xerxes on the Platform of the Palaces at Persepolis.



Photo from Sir Percy Sykes.

COLUMNS AND GATEWAYS OF THE FINE PORCH OF XERXES

Two piers of the Propylæa of Xerxes are illustrated on another page; this is the whole structure, or such of it as remains to-day. It will be seen that the plan of the building is too solid, almost rugged gateways at either end, flanked with human-headed bulls, and a short colonnade of graceful pillars connecting the two. The contrast between the airy shafts and the foursquare masonry of the doorways is something new in architecture, and represents a blending of Egyptian, Assyrian, and perhaps Ionian features.

the hills gnawed mercilessly at the wooden architraves and slowly crumbled the clay which covered them. In the course of half a century or so from the period in which they had been last inhabited, they had sunk into almost the same degree of ruin in which we now behold them. Then came the Arab, who quarried among their pillars for the building materials out of which his farm or homestead was to be constructed. And lastly fell utter desolation—noiseless, silent, sun-drenched ruin, where once stood on their platform the snow-white colonnades of the throne-rooms of the great kings.

THE SEVEN WONDERS. VI
THE COLOSSUS OF RHODES

BY J. A. BRENDON, F.R.HIST.S.

THE COLOSSUS OF RHODES

BY J. A. BRENDON, F.R.HIST.S.

Author of "The Story of the Ancient World," etc.

YOU may seek, but you will seek in vain, at Rhodes for any trace of the famous Colossus. Of this great statue, accounted one of the Seven Wonders of the World, nothing remains; there is nothing even to indicate where it stood. More than two hundred years before our era, it fell. The bronze giant has now been entirely demolished—sold as scrap, it is said.

Wrote the Roman historian, Pliny, who visited the islands in the Ægean in the first century A.D.:

Most worthy of admiration is the colossal statue of the sun which stood formerly at Rhodes, and was the work of Chares the Lindian, no less than seventy cubits in height. The statue, fifty-six years after it was erected, was thrown down by an earthquake, but even as it lies it excites our wonder and imagination. Few men can clasp the thumb in their arms, and the fingers are larger than most statues. Where the limbs are broken asunder, vast caverns are seen yawning in the interior. Within, too, are to be seen large masses of rocks, by the aid of which the artist steadied it while erecting it.

So meagre are the reliable descriptions which have been handed down to us that it is difficult to visualise a reconstruction of this wonder. The Colossus was an immense statue of Helios (Apollo), the sun god and protecting deity of Rhodes. Chares of Lindus designed it, and for twelve years, 292 to 280 B.C., laboured at its construction. It stood at the entrance to Rhodes Harbour, and in the year 224 B.C. was overthrown by an earthquake. These are facts, beyond the range of controversy.

Shakespeare's allusion to the Colossus was inspired by mediæval tradition. Cassius, speaking of Julius Cæsar, it will be remembered, says:

He doth bestride the narrow world
Like a Colossus; and we petty men
Walk under his huge legs, and peep about
To find ourselves dishonourable graves.

—(*Julius Cæsar*, Act I., Scene 2.)

We know that the old harbour of Rhodes had a very narrow entrance. The popular belief, however, that the Colossus stood actually astride it, that all ships approaching or leaving the city had to pass between the statue's legs, is certainly false. Not one of the ancient writers has assigned this position to the statue, and it is highly improbable that a Greek sculptor would have placed the figure of a god in an attitude so inartistic and undignified. The statue, an immense nude form with outstretched arms, stood really, it would seem, with feet together at the end of the long pier or mole which divided the old harbour into two parts.

Pliny's estimate of its height can be accepted. Other writers have endorsed it. Seventy cubits are the equivalent of, roughly, 105 feet. The Colossus, therefore, was rather more than half as tall as that fluted column, the Monument, which stands in Pudding Lane, London, to remind us where the Great Fire of 1666 first broke out.

The statue was made of bronze, cast in moulds, and was gradually raised upward, section by section, from its foundation in the harbour. The huge legs were strengthened inside with masonry, lest the weight of the body should prove to be greater than they could bear; and within ran a spiral staircase from feet to head. In the eyes, according to some accounts, the Rhodians kept burning a beacon light to serve as a guide to ships.

The story is told that Chares, when he had nearly finished his task, discovered an error in his calculations, and committed suicide. The error, however, could not have been a serious one. Those who saw the Colossus have proclaimed it not merely the largest but the most perfect model of a human form ever fash-



Based on a portion of a picture by M. Kuchka, and specially coloured for "Wonders of the Past."

COLOSSUS COMMEMORATING THE HEROISM AND DELIVERANCE OF RHODES

None of the Seven Wonders have suffered so piteously as the Colossus of Rhodes; there is more than a likelihood that the Hanging Garden of Babylon have been identified, but the exact site of the Colossus is lost to memory. From ancient writers, however, we know that it stood somewhere at the entrance to the harbour; that it was 100 feet high, or a little over; that it was made of bronze, in sections, strengthened with masonry within; and that the popular idea of it, standing with legs astride, is false.

ioned by man. And the Greeks of old were exacting critics in such matters.

Why was the Colossus erected?

The answer to that question is a story of heroism hard to match. In the sixteenth century the blight of Turkish rule fell on Rhodes, and the island to-day is an insignificant place, sparsely populated, unprogressive, poor. But it has not always been like that. There was a time when it played a big part in the affairs of the world. Of its very early history little can be said. The island was civilised, however, long before Homer sang, and, under the influence of that wonderful civilisation which radiated from Crete, its people prospered mightily. As workers in metals, they were famed for centuries from the Euphrates to the Nile.

After the power of Crete had declined, Greeks colonised Rhodes, and built at its north-eastern end a great harbour—now filled with sand—and a city so splendid that it came even to rival Athens. With this as their capital, the Rhodians, seafarers and merchants, were for many years the richest people in the Ægean. At length troublesome times befell them. Their wealth kindled jealousy, and they were forced to acknowledge in turn the supremacy of Sparta and Athens. Their ships, however, continued to dominate Mediterranean trade routes and maintain their prosperity.

Next, Mausolus conquered them—that Carian king whose tomb at Halicarnassus (see page 29) ranks with the Colossus among the Seven Wonders of the World. Then Persians captured the island.

In 340 B.C. Alexander the Great delivered Rhodes from Persian thralldom, and, on the death of the mighty Macedonian, it regained its freedom. Then began the most successful period of its career. Alexandria was at that time the chief centre of Mediterranean trade; but they were Rhodian ships which brought to it the riches of the East, Rhodian ships which distributed over the world its merchandise from Egypt and the South.

In 312 B.C. Ptolemy, the king of Egypt, once a general in the service of Alexander the Great, became involved in a struggle with his former brother-in-arms, Antigonus, the ruler of

Macedon. Self-interest induced the people of Rhodes to rally to the side of Ptolemy. And gallantly they fought for him; the valour of their seamen contributed materially to the defeat of the Macedonians.

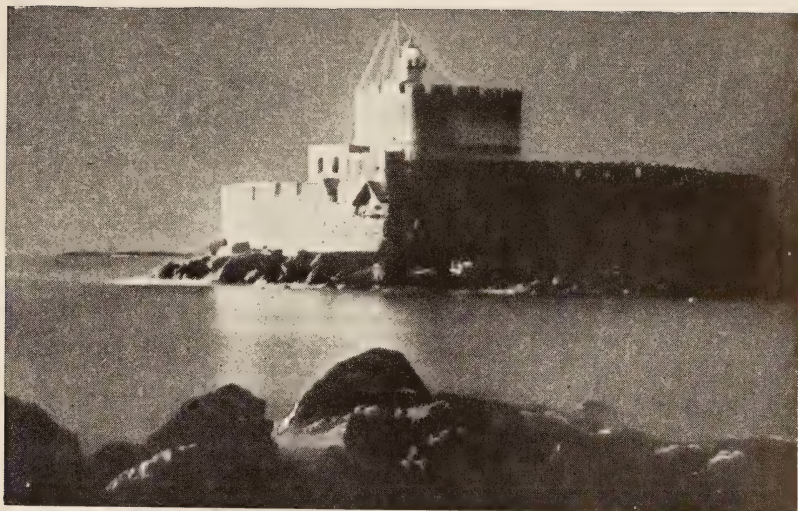
Antigonus resolved to punish Rhodes, and in 307 B.C. sent a great expedition against the island, under the command of his son, Demetrius. With three hundred and seventy ships, we are told, Demetrius sailed, and 40,000 men, and a powerful and awe-inspiring siege artillery. The Macedonian host outnumbered the entire population of Rhodes. How could the islanders hope to repel the serried might of this terrible armada?

Undaunted they made their city ready for a siege, and for twelve months offered a desperate resistance. Slaves were armed, and promised freedom if victory should be won. Women worked night and day preparing munitions, and gave their hair as bow strings. Temples were pulled down that the stones might be used to strengthen the walls and repair breaches.

Demetrius, meanwhile, delivered attack after attack. Steadily he approached his goal, and it became clearer to the devoted defenders as each new day dawned that they could not hold out indefinitely, that only help from outside could save them and their city. In 306 B.C. that help came. Ptolemy, mindful of the services which the Rhodians had rendered to him, arrived off the island with a fleet, and forced the Macedonians to withdraw. The Rhodians then gave to Ptolemy the name of "Soter" (the saviour), by which he is still known to history, and to commemorate their deliverance raised the famous Colossus in honour of their protecting deity, the sun-god.

They made it wholly of metal taken from the engines of war left behind by Demetrius, and naturally entrusted its building to Chares. Was not Chares the favourite pupil of the renowned Lysippus, the sculptor on whom, by royal decree, the great Alexander had conferred the exclusive privilege of carving his statue? And had he not fought gallantly in defence of Rhodes?

Alas, the Colossus stood for a short while only. In 224 B.C. an earthquake shook Rhodes, and the huge bronze figure crashed on the rocks in the harbour, where for centuries it lay, as Pliny saw it, prone and pathetic, a giant dismembered.



ILLUMINATED LANDSCAPE OVER WHICH THE COLOSSUS GAZED

It must have been somewhere in the neighbourhood of the Fort of S. Nicholas, a relic from the days of the Knights Hospitallers guarding the harbour of Rhodes, that the Colossus once stood, masterpiece of Chares and Wonder of the World. But it never stood, as here, in the unearthly glare of a searchlight!

Numerous attempts were made to restore it to its place. But, though the cleverest engineers of Greece and Egypt were engaged in the task, no means could be found of raising it. In A.D. 672 the Arabs, when they gained possession of Rhodes, sold what remained as waste metal to a Jew. That old Jew, it is said, carried away nine hundred camel loads—three hundred tons—of bronze.

ANCIENT ARTS AND CRAFTS. VII
VIKING SHIPS: SURVIVALS OF 1,000
YEARS

BY A. MACCALLUM SCOTT

VIKING SHIPS: SURVIVALS OF 1,000 YEARS

BY A. MACCALLUM SCOTT

Author of "Through Finland to St. Petersburg"

CHRISTIANIA, the capital of Norway, lies at the head of a long, low-shored fjord, running up northwards from the narrow straits which form the entrance to the Baltic. Round it lies much of the most fertile land in Norway. This sheltered northern water, with its many islands and natural harbours and its safe landing beaches, was known to the Scandinavians of old as the Wick, or Vik, and the race of sailor adventurers who were bred on its shores, and who issued forth in the eighth and ninth centuries to make their name famous and feared on every shore of the civilised world, were known as the Vikings. Here was the cradle of one of the strongest and most enduring elements of the British race. Here were bred the instincts and the ideas, here was formed the character of the race which was first to threaten Roman civilisation with ruin, and afterwards to transform and rebuild it into that quite different thing which we call Western civilisation, the ruling force in the world to-day.

In a wooden shed at the west end of Karl Johans Gade behind the university, may be seen a veritable Viking ship, one which, a thousand years ago, may have borne settlers to Iceland, or harried the coasts of Britain and France, or borne the Varangian adventurers up the Neva to Novgorod to join Rurik in his conquest of Russia. The warriors' shields are arranged, one overlapping the other, along the gunwale, in full war trim. It is frail with age. Some of the timbers have been broken. The mast has gone. But it is a ship as we know a ship.

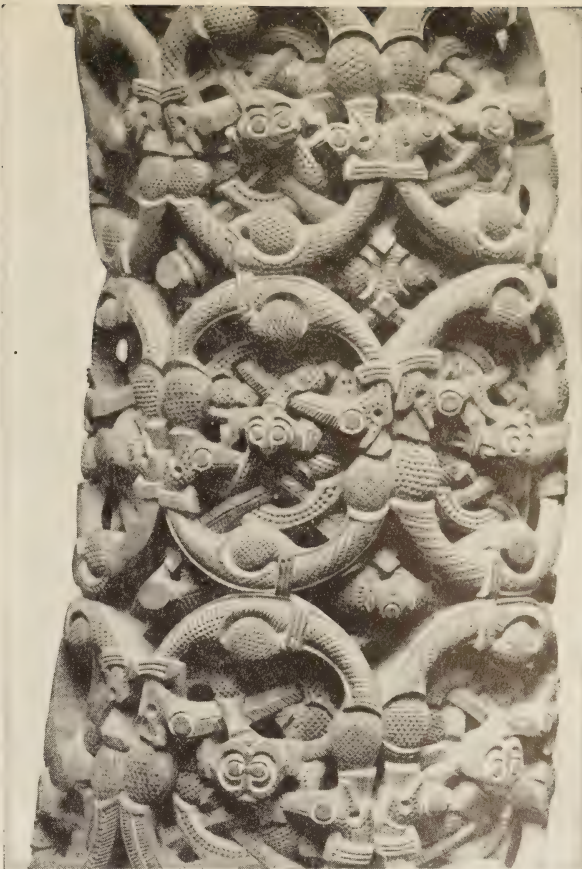
The dug-out canoes of three thousand years ago which have been recovered from the silt of Clyde and others of our great rivers are but floating logs. The ancient Nile boats, as depicted on the monuments, and of which facsimile models have been found in the tombs of Egypt, have a land-lubber look about them. But this Viking ship was made to battle with wind and waves on the outer ocean, and to carry men's lives on the waste of waters. That gull-like shape, those graceful lines for cleaving and skimming, are as different from those of the Nile craft as a Gothic cathedral is from a wooden hut. These forms were not invented by accident or by caprice. They lay embedded in the structure of the universe, and were inevitably evolved as the resultant of the forces of wind, water, and timber. The principles of naval architecture were discovered by the same northern race which gave us the principles of Gothic architecture, and much else that is fine.

This extraordinary relic of antiquity has been preserved in precisely the same way in which Tutankhamen's funeral furniture has been preserved in his tomb in the Valley of Kings. It was discovered in the "How," or tumulus, of a great Viking leader. He lived by the sea. His ship was his chariot of war, his throne of state, the key that unlocked the treasure house of far distant shores. It was the most precious part of his material wealth, as personal to him as his horse or his dog or his sword. The use of it called forth a skill and mastery of which he might well be proud. He loved it like a living thing that knew his will and answered to his touch. When he died it was meet that he rode to Valhalla, to the Hall of Heroes, in the ship that gave him the freedom of the seas, and with his other choicest treasures ranged round him.

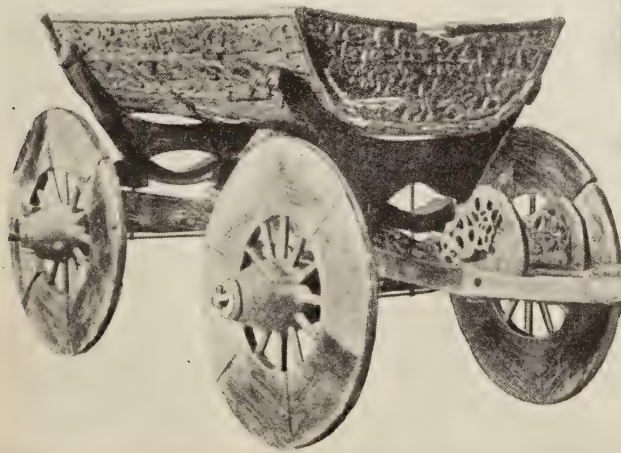
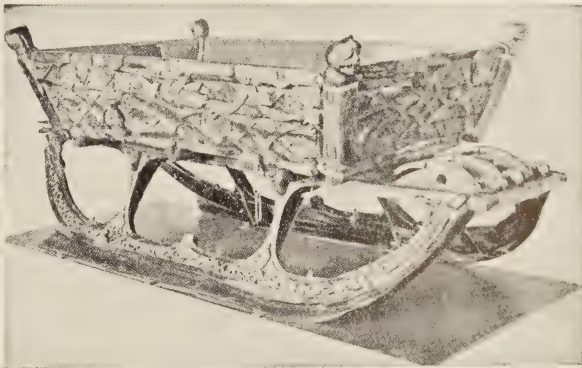
There were two ways in which the dead Viking might ride to Valhalla: by sea or by land. The more picturesque was by sea. The body was laid in state in the ship, and a pyre of faggots was raised round him. Then, with a favouring breeze from shore, full sail was spread, the faggots were kindled, and the vessel was launched forth into the open sea towards the sunset. It was the Viking's last voyage "West Over Sea," into a more unknown country than he had ever explored during life. No sacrilegious thief could ever rob that hero of the treasure he



The ends of the queen's bedstaff were carved in the shape of an animal's head with neck bent backwards. The entire composition, however, owing to the openwork device with which it is pierced, is very complicated and hard of interpretation.



A photograph in detail of the carving on an animal-headed post showing the grotesque conceits of the Viking artist in wood.

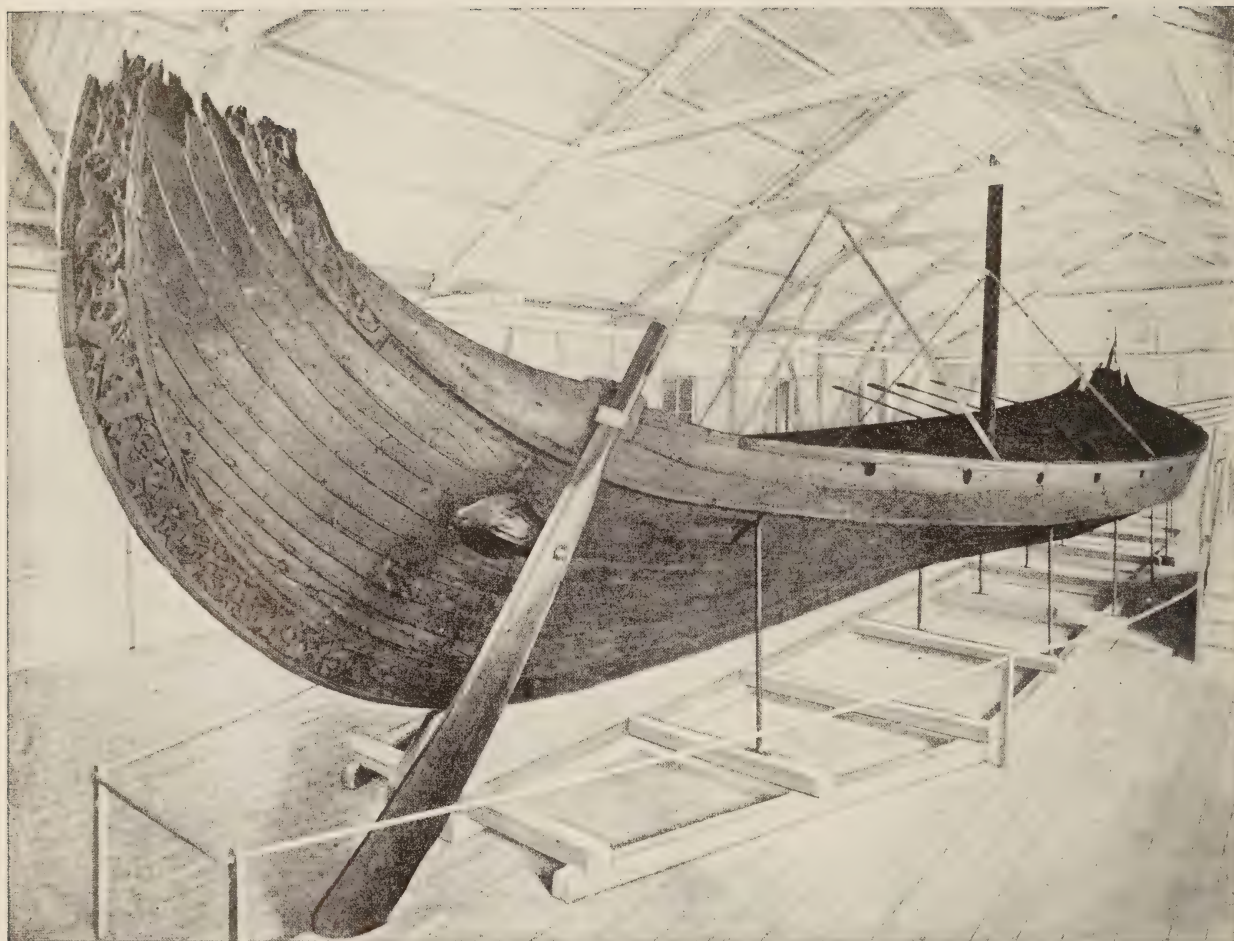


Courtesy of the Christiania University.

A UNIQUE COLLECTION: VIKING ART IN CARVEN WOODWORK

Many objects were found on board the Oseberg ship, among them being a little iron anchor, the earliest yet discovered of this material from Viking days; a circumstance which allows us to date its building in the neighbourhood of A.D. 800. But at once the most striking and the most archaeologically important of the finds were numbers of carved wooden objects, part of the funerary equipment of the queen to whom the burial belonged. There must have been a notable school of artists at Oseberg to produce such treasures. A wooden wagon was the most important item; the monsters' heads with which it swarms probably had some magical meaning.

Above, a sledge.



Courtesy of the Christiania University.

THE OSEBERG SHIP PIECED TOGETHER IN THE CHRISTIANIA MUSEUM

What so marks the Oseberg discovery is the mass of priceless wood-carving found on board, a large proportion of which is an integral part of the ship itself. An excellent example of the type of workmanship is provided by these mystic monsters and runic scrolls on the high, sharp-pointed stern. The skeletons discovered in the burial chamber were those of women, and it seems that the ship was rather for state journeys of the queen than a deep sea vessel of a Viking ocean wanderer. The original position of the burial-chamber is marked by an outline-frame-work of light poles.



SHARP, ADVENTURE-QUESTING LINES OF THE GOGSTAD SHIP

The Oseberg ship is not the only one preserved in Christiania; besides a few fragments in the Museum, there is the earlier discovered and even larger Gogstad ship. And though not so richly adorned, at least it still bears the old wooden burial-chamber amidships, crushed out of existence in the later discovery. This illustration shows the stern; it is not crusted with carving like the stern of the queen's ship from Oseberg, but then the vessel was intended for stern battle with the tempests of the outer seas. Inset above is a view of the opposite side, showing the warriors' shields which were discovered on board.



Courtesy of the Christiania University.

FRAIL ADVENTUROUS VESSEL FROM THE BURIAL MOUND OF A QUEEN AT OSEBERG

This photograph of the Oseberg ship shows the arrangement of ribs, stringers, and deck planking; the view is towards the stern, and on the starboard side may just be seen the handle of the steering oar, half obscured by the framework-pole of the burial-chamber. The object lying on the deck is a baling scoop. In barks not much stouter than this, pitifully frail to our modern eyes, the Vikings of old ventured forth on voyages which sometimes ended as far afield as the coasts of Greenland, and even of America.

took with him. The smoke of his pyre drifted across the wine-red sky of the northern sunset, and the watchers discerned in its shapes the figures of the Norns, who sit by the tree Yggdrasil spinning the destinies of men, and the Valkyrias, the Riders of the Storm, the Choosers of the Slain.

The other way was by land. It was known as Ship Burial. Instead of being launched to sea the ship with its mortal freight was dragged high on shore and a pyramid of earth and stone piled over it to keep it secure from violation. This was the Viking's *How*, in the heart of which, like the trolls beneath the roots of the mountains, it was hoped he would enjoy his treasure for ever.

On, or near, the mound there would be erected a *bautastein*, or memorial stone, on which were carved some rude decorations of impossible animal figures, twisting and intertwining in serpentine fashion, and an inscription in runes. The Vikings were not a people given to writing. Their literature was handed down by oral tradition, like the chants of Homer. It was a great literature, but it was not committed to writing till centuries later. The Vikings knew nothing of pen and paper or parchment. Their only writing implement was a chisel or the point of a knife. But for many centuries there had been preserved among the Gothic races, of which they were a branch, an archaic alphabet. This art of runic writing was a secret known only to the initiated. The very word "rune" means mystery. It probably originated through the intercourse of early Gothic tribes with Greek colonies on the shores of the Black Sea, or with the first Roman adventurers across the Danube. These runes added a spell which guarded the sanctity of the *How*.

But all the magic spells of priests and sorcerers have ever failed to divert the bolder spirits from buried treasure. The tombs of Egypt were rifled almost in the generations in which they were erected. Evidence has been discovered which indicates that even the builders left secret passages and traps whereby they could obtain an entrance afterwards without disturbing the seals which had been placed upon the ostensible entrance. And in the far north there were men bold and reckless enough to brave all the terrors of this and the next world for the sake of plunder. Even stronger than the lure of treasure was the

lure of a famous weapon. To become possessed of the sword of a great Viking was to secure a talisman of victory.

Hroar, son of the Jarl of Gautland, we are told in the Hardar Saga, made a vow that he would break the grave mound of Soti the Viking. "A great vow!" said the Jarl, "for Soti while alive was a mighty troll, and a greater one by half now that he is dead."

But Hord, and Geir, and Helgi swore to accompany him. They reached the mound early in the day, and by evening they had dug through to the timbers of the ship. But in the morning the mound was whole again, and this happened the next day also. A wise man gave them a spell to overcome this difficulty. On the fifth day they forced an entrance. "Hord bade them beware of the wind and stench which issued from the mound, and stood himself at the back of the door while it was at its worst. Two of the men died suddenly with the bad air which came out, through being too curious." Hord then ventured in alone, for none of the others durst accompany him at first. In the side-chamber he saw a ship with treasure in it, and at its stern sat Soti, terrible to look upon. Hord made to seize the treasure, but Soti sprang upon him. Soti gripped so hard that Hord's flesh ran into knots, but when the light fell upon him he lost all strength and fell to the ground. Hord took a gold ring off Soti's arm, so great a treasure that it was said that never had so good a ring come to Iceland. He took also Soti's sword and helmet, both of them great treasures. The Hows which have been opened in recent times proved that there is much truth as well as embellishment in this saga story.

Two Viking ships are preserved in Christiania, of which the more complete and perfect is known as the Gogstad ship. It was taken from a How at Gogstad, near Sandefjord, on the western shore of the great Christiania Fjord, or Vik. It had been dragged high above the sea level, and lay with its prow pointing seawards ready for the last adventure. Its excellent preservation is due to the fact that the mound piled above it consisted of blue clay which stuck close and kept out the air. It is approximately 77 feet long by 16½ feet wide, and 6 feet deep, while the keel is 57 feet long. It is seated for sixteen benches of oars, two oars to each bench. This was not one of



WOODEN BUCKET

Bronze hoops and an enamelled handle enrich this little bucket from the burial chamber of the Oseberg ship.



Courtesy of the Christiania University.

ANIMAL'S HEAD FROM THE OSEBERG SHIP

The treasure in the shape of wood-carving found aboard the Oseberg ship forms the most wonderful collection of Viking art discovered; and this animal-headed post, with its intricate pattern, is the choicest of the whole find. Many of these posts were decorated with silver plates on eyes and teeth, and studded with silver nails; and a detail-photograph showing the tremendous complication of the carving on one of them appears on a previous page.



Courtesy of the Christiania University.

MAST, OARS, AND FORWARD DECKING OF THE OSEBERG SHIP

In such shallow bottomed vessels as the Vikings used, the mast had to be strongly secured at the foot; this photograph of the Oseberg ship shows much the same arrangement as may be seen in the section of the Gogstad ship. Three of the oars may be seen on the right, resting in the tholes; there were fifteen a side. Their length varies from about $12\frac{1}{2}$ to $13\frac{1}{2}$ feet, according to their position in the ship, and there are still faint traces of painting on the blades.

the largest ships. At a later period Olaf Trugvasson built the "Long Serpent," with thirty benches of oars. But in ships like this the Vikings were not afraid to steer out into the open Atlantic, with no guide but the sun and the stars. They circumnavigated the Mediterranean, they colonised Iceland, and they visited the distant shores of Greenland and America.

The Gogstad ship is clinker-built, plank over-lapping plank. It is shallow-bottomed for easy beaching and for navigating shallow waters. Cæsar, when he first launched a fleet on the English Channel, found that the northern sailors could outmanœuvre him for this reason. Both the prow and the stern are high and sharp pointed, to meet and divide the rolling billows of the Atlantic or a heavy following sea. The shelving, bellying sides enable it to skim the water like a yacht. It is capable of high speed. These lines are the result of long experience in the arts of navigation and of shipbuilding. The builders of this ship thought of more than floating and drifting. They did not shun the open sea like the ancient coasters of the tideless Mediterranean waters.

Besides the thirty-two oars there was a single mast, firmly and securely fixed, and a large, solitary, square sail. The Vikings had not yet mastered the art of tacking which has increased so enormously the command of the sailor over his ship. When the wind was favourable they sailed straight ahead. When it was unfavourable, or when there was a calm, they laboured at the oars. The steering was done not by a rudder fixed at the end but by a single broad oar slung over the righthand side of the ship, near the stern. This was the "Stjornbordi," or steering side, from which the nautical term of starboard, still in use, was derived. An exact replica of this ship was built for the Chicago Exhibition, at the end of the nineteenth century, and was sailed by descendants of the Vikings across the Atlantic on its own bottom.

It was with fleets of such ships that the Danes ravaged the coast of England in the ninth century. King Alfred was the first of a long line of English seamen who realised that the security of England must be maintained at sea. He took into his service some of the boldest of the Norse Vikings, and began to build an English fleet which, in the end, broke the power of

the Danish invaders. One of these Vikings was Othere, who "dwelt northmost of all north-men" in Halgoland, of Norway. Alfred himself, in good Anglo-Saxon, has preserved an account of one of Othere's Viking voyages. "Othere told his lord, King Alfred," that he sailed round the North Cape, into the Arctic Ocean, and along the northern coast of the land of Lapps and Beormians, as far as the river Dvina. He described the rein-deers, and the whale hunting, and the walruses "with noble bones in their teeth," of which they brought home specimens to the King. This would be about A.D. 890. For more than a thousand years the Viking spirit of Othere has animated the British Navy.

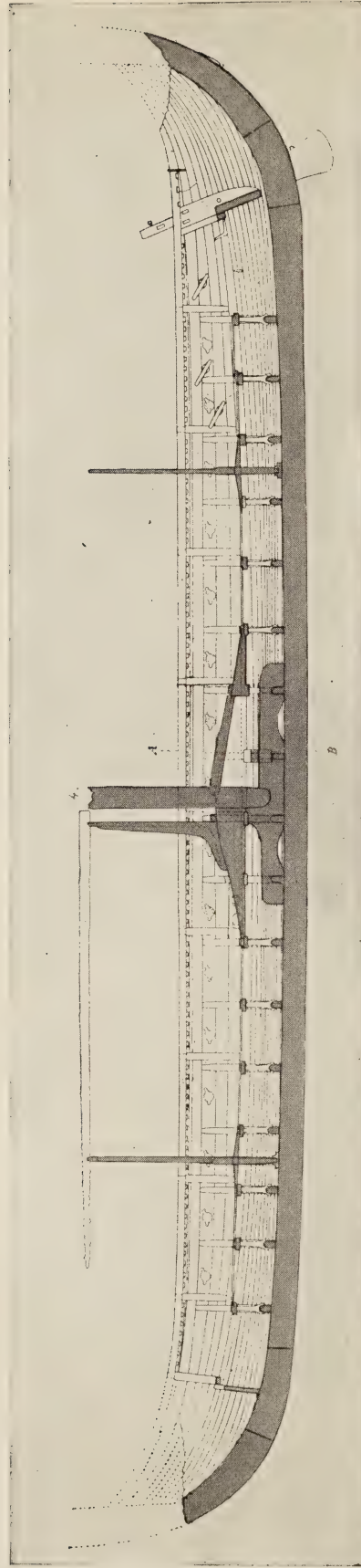
In all these thousand years shipbuilding has not materially departed from the lines exemplified in this venerable ancestor of the British Navy. In splendid prose ("Harbours of England") Ruskin has recorded the emotion which the sight of a boat stirs in the average Englishman. "Of all things, living or lifeless, upon this strange earth, there is but one which, having reached the mid-term of human endurance on it, I still regard with unmitigated amazement. One object there is still which I never pass without the renewed wonder of childhood, and that is the bow of a boat." It is marvellous and exquisite in all its forms, from the simple fishing boat to the fully rigged merchant ship. But "take it all in all, a ship of the line is the most honourable thing that man, as a gregarious animal, has ever produced. Into that he has put as much of his human patience, common sense, forethought, experimental philosophy, self-control, habits of order and obedience, thoroughly wrought handwork, defiance of brute elements, careless courage, careful patriotism, and calm expectation of the judgement of God, as can well be put into a space of 300 feet long by 80 broad." It is all there in smaller space in the Gogstad ship.



Courtesy of the Christiania University.

STERN VIEW OF THE OSEBERG SHIP AFTER MONTHS OF PATIENT EXCAVATION

As so often in other cases, we have to thank the burial customs of the past for the discoveries in Norway that have told us so much of the early art of navigation. According to one practice, the dead Viking was buried inside his own ship, dragged on shore, and completely covered with a great tumulus or "How," under which the age-old Vikings are sometime wonderfully preserved. The Oseberg ship here illustrated, after being unearthed but before its removal piecemeal for reconstruction, was discovered thanks to the enterprise and curiosity of the owner of the land; in 1904 the work of excavation was taken in hand by Professor Gustafson, but it was not until 1907 that the entire ship was restored and exhibited.



After a drawing by Nicolaysen.

SECTIONAL DRAWING OF THE BURIAL SHIP OF A VIKING, DISCOVERED AT GOGSTAD

Of the two Viking ships preserved in Christiania, one is known as the "Gogstad" ship, from the place of its discovery on the shores of the Christiania Fjord. Although no such wealth of art and carving were discovered aboard as in the case of the "Oseberg" ship, it is larger and more seaworthy, having overall measurements of 77 feet long by 16½ feet wide, and 6 feet deep amidships; the length of the keel is 57 feet. As shown in this section, it is clinker-built, pointed fore and aft, and rudderless, being steered by a single oar on the starboard side; the mast is amidships, well and strongly stepped, and in addition there are benches for thirty-two rowers. The ship can have drawn very little water, and could be easily beached. The burial-chamber was added immediately aft of the mast.

TEMPLES OF THE GODS. XIII
THE GODS OF ANCIENT ROME
BY W. R. HALLIDAY

THE GODS OF ANCIENT ROME

BY W. R. HALLIDAY

Professor of Ancient History in the University of Liverpool; author of
"Greek Divination"

WHEN the Latins came into contact with the civilisation of Greece, the Latin gods took on the nature and attributes of the Greek gods, giving them their names in exchange. And though some gods (such as Janus) remained purely native, while in other cases (Zeus-Jupiter) the identification was etymologically justified, for the most part the process was quite arbitrary. When it is further added that the plastic representation of the gods began after the process was complete, the difficulties of adequately illustrating this chapter will be realised. In order to prevent its being pictorially a repetition of Prof. Halliday's study on "The Gods of Ancient Greece," only those (sometimes minor) deities have been selected who preserved or acquired a Latin flavour.—EDITOR.

THE Latin word "religio," from which our "religion" is derived, originally meant the feeling of awe with which the early Italian regarded the inexplicable element in natural phenomena. The menace of the forest or the terror inspired by the lightning made him conscious that his existence was affected by the activity of powers which were beyond his understanding and control. The mystery of less dramatic processes of nature also attracted his attention. Some agency, he felt, was operative in causing the corn which he put into the ground to grow and multiply. Indeed, into every action of his there entered some incalculable element beyond his personal control which made that action effective or ineffective. It therefore became advisable to secure the co-operation and to avert the opposition of these agencies. Thus "religio" developed its secondary meaning of the performance of ritual duties necessary to secure this important result.

If the Greeks were a race of artists, the Romans were a

race of lawyers, severely practical in their intellectual outlook and curiously capable of abstract conceptions. These supernatural agencies, which were called "numina," can hardly be termed gods, for they were impersonal as well as incorporeal. Their worshippers had little intellectual curiosity, and in fact displayed no interest in them apart from their activity. They invented no mythological stories about them, and constructed no cosmogony or story of how things came to be. They were concerned only with their relation to these unseen powers as it affected their practical actions and affairs. This relation was regarded as based upon an unwritten contract, and it was assumed that if the appropriate rites were performed in exactly the proper way, the "numen" concerned would do its duty by the human beings who had adequately performed theirs. Upon the maintenance of right relations with the unseen powers depended the welfare of the family, the farm, and the State, and it was therefore the duty of the authorities respectively responsible for these social groups to ensure the fulfilment of the human side of the contract.

Of special importance to the welfare of the family were Janus, the power of the door, which guarded the breach in the defences of the home through which material or spiritual harm might enter, and Vesta, the power of the family hearth, with which were associated Penates, the powers of the "penus" or store-cupboard. The procreative life force, which enabled the family to persist continuously through its successive generations, was worshipped as Genius, a power which was intelligibly regarded as being peculiarly manifest at a given moment in the head of the family at that time. The worship of the Lar Familiaris, which is often, but wrongly, thought to have originated in the worship of dead ancestors, came into the house with the farm hands. The Lar was originally the power associated with the farmer's holding, and represented the "luck" of the family on the material side. Eventually, under Greek influences, all these "numina" came to be thought of as spirits possessing personality and sex, who could be appropriately represented by art in human form; originally, however, they seem to have been regarded as abstract, impersonal, and incorporeal powers associated with the objects or functions above enumerated.

Throughout the year a regular series of ceremonies secured the assistance or averted the obstruction of the various powers connected with the seasonal activities of the farmer. Of these we have a record in the early religious calendar, which represents the adaptation and organization of the ritual of the household and the farm to meet the needs of the community as a whole. The State, like the family, had its doorway, Janus, and its sacred hearth, Vesta, the fire upon which was tended by the daughters of the king, the Vestal Virgins, just as the family hearth was tended by the unmarried daughters of the house.

In May the farmer drove triple victims of sacrifice (a pig, a sheep, and a steer) in a procession of purification round the limits of his holding. The State similarly purified the boundaries of the city and its territory. Similar ceremonies, indeed, have survived in modern Europe in the Rogation Processions of the Roman Church and in the practice, still observed in many parishes in England, of the annual "beating of the bounds."

The organization of religion by the State was the logical consequence of the legal attitude of the early Roman towards the unknown. The successful issue of religious acts depended, in his view, upon a meticulous accuracy in their performance. This should therefore be entrusted to the expert, who alone had the necessary knowledge. The layman's part was to avoid any action which would interfere with the professional's activities upon his behalf. It is for this reason that the calendar was published, and that every month the religious authorities announced what festivals would take place, and upon what days secular business was lawful or unlawful; for a secular transaction upon a holy day would destroy the efficacy of its rites, and seriously threaten the relations of the whole community with the unseen powers.

It will be observed that this religious attitude, although it imposes the salutary discipline of the regular observance of religious duty, is ethically weak. The authorities assume undisputed control of public worship, and with it complete responsibility which, except for the negative duty of non-interference, is thus shifted from the shoulders of the layman. The qualification demanded of the religious authority is not holiness, but expert knowledge. In consequence the Pontiffs, who controlled

religious administration, could and did combine their sacred duties with the tenure of the highest secular magistrates of State. Again the religion of the community was thus early organized into a stereotyped system, which was highly specialised inasmuch as it was concerned with a community the interests of which were still purely agricultural. Rome did not remain a community of peasant farmers, but the rigid system was incapable of organic development, and it followed that her new needs were met, not by growth from within, but by supplement from without.

Under the later monarchy (sixth century B.C.) Etruscan influences became dominant in Rome, which then acquired a new commercial and political importance. Temples were now constructed for gods, who were conceived as divine personalities and were represented by art in human form. With the immigration of foreign artificers came Minerva, the patroness of handicraft; for Diana, whose worship had formed a religious bond between the cities of Latium, was built a new temple in Rome, which had now become the head of the Latin League; upon the Capitol was constructed the temple of Jupiter Greatest and Best, the patron deity of a State which was prepared to assert its political claim to be greater and better than its neighbours. It has been said with some truth that at this stage "a religion of patriotism was substituted for a religion of physical increase."

As the commercial and political interests of Rome extended her pantheon was increased by the addition of the local deities of allied or conquered communities. It was not an unusual practice to "evoke" the native deity of a beleaguered city by a solemn promise that, in the event of the god coming over to the side of the besiegers, his cult would be officially established in Rome after the capture of the town. The decision in particular cases, whether or not the worship of a foreign god should be adopted, lay with the Senate and the College of Pontiffs, who strictly controlled religious administration.

Both the Etruscan and Latin cities had been profoundly influenced by the civilisation of the Greek cities of Southern Italy, and much of the religion which Rome borrowed from these sources was Greek at second hand. Already, however, under the

monarchy Greek influences became directly active. A legend told how an old crone presented herself before the last of the Tarquins and offered nine books for sale at a prohibitive price. When the king refused her offer, she burned three and offered six at the same preposterous figure. The king again refused, three more were burned and the same price demanded for the surviving three. The king, impressed by this remarkable method of bargaining, secured the documents. The crone had been none other than the Sibyl, a Greek prophetess who inhabited the oracular cave at Cumæ, the oldest of the Greek settlements upon the Bay of Naples, and the documents purchased were the Sibylline Books.

The use of these prophetic writings was strictly controlled by the state, but in the event of some grave national difficulty, e.g., the occurrence of a plague or famine, they were officially consulted as to the appropriate measures necessary to avert the manifest displeasure of heaven. Upon such occasions the Sibylline Books usually recommended the adoption of Greek deities and Greek rites, and thus powerfully promoted the assimilation of Hellenism by Rome. Italian gods were identified with Greek deities. Minerva, for instance, was equated with Athene, Diana with Artemis, Juno with Hera, and the Italian garden goddess, Venus, with Aphrodite, the Greek goddess of Love.

With the Greek gods came the Greek stories about them, and Greek mythology was simply taken over by the Romans, who had none of their own. New types of ritual of Greek origin and appropriate to the worship of anthropomorphic gods were also introduced. Thus in 399 B.C. the Sibylline Books recommended the celebration of the first "lectisternium," a ceremony in which images of gods were paraded upon couches and were offered a banquet. The gods honoured upon this occasion were Apollo and Latona, Diana and Hercules, Mercurius and Neptunus. Of these Apollo, Latona, and Hercules were Greeks, and the other three were identified with the Greek Artemis, Hermes, and Poseidon respectively. Greek, too, was the ceremony of "supplicatio" in which the people visited the images of the gods in procession to implore divine assistance.

The great strain of the Second Punic War (218-201 B.C.) when Hannibal, at large in Italy, again and again annihilated

the Roman armies, naturally provoked religious anxieties, which, in the main, were allayed by "lectisternia," supplications, or the establishment of religious games upon the Greek model. But on the eve of the final effort, when it had been decided that Scipio should end the war by attacking Carthage in Africa, religious aid of a new character was invoked. From Asia Minor was brought to Rome a black meteoric stone, which represented Cybele, the Oriental mother-goddess of nature. Although for more than two centuries the worship of the Great Mother was the only Oriental cult officially recognised by the Roman State, its introduction in 205 B.C. is a significant event. For in the first centuries of our era the Roman world came to be dominated by a number of Oriental religions.

The failure of the early Latin or the Græco-Roman forms of worship to satisfy the religious needs of the time facilitated this invasion. The old State religion, which had become stereotyped at a comparatively primitive stage of Rome's development, was now inevitably out of touch with life. Even the language of its formulæ was unintelligible. It survived mainly as an obsolete piece of State machinery, which could be exploited by political wire-pullers. Again, prolonged direct contact with Greek civilisation had profoundly modified Roman character. In particular the influence of Greek philosophy, which at the time of its contact with Rome was passing through a severely rational and even rationalistic phase, was iconoclastic and sceptical. It destroyed conservative respect for irrational tradition and it exposed the puerilities of mythology or explained them away as allegorical representations of natural phenomena or philosophic theories. Neither the original nor the added elements in Roman religion attempted to satisfy the needs of individualism and the craving for personal survival after death.

In general, the last century B.C. was a sceptical period. A President of the College of Pontiffs himself declared that religion was composed of three kinds: (1) mythology, which consisted of the purely ornamental fictions of the poets; (2) philosophy; (3) the religious ceremonies of the State, which existed solely to provide the statesman with an instrument for managing the ignorant proletariat. It is not surprising, there-



Museo Nazionale delle Terme, Rome. Photo by Anderson.

MARS, THE GOD OF WAR AND HUSBANDRY

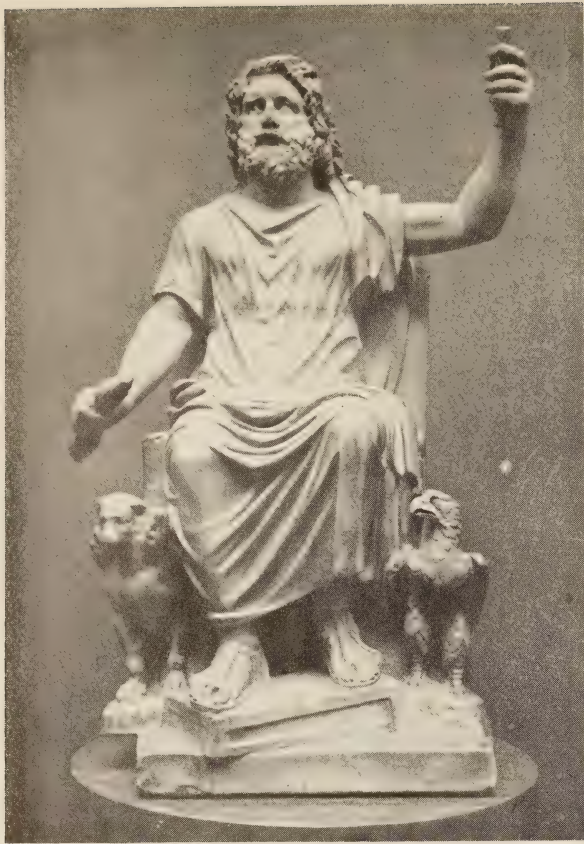
Mars was identified with Ares, but, as the father of Romulus and Remus, was a greater god at Rome than ever Ares was in Greece. This is the famous Ludovisi Ares, after the manner of Lysippus; the little Cupid refers to his connexion with Venus (Aphrodite), of importance as the mother of Æneas.



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SILVANUS OF THE CYPRESS GROVE

Silvanus was a god of forests, not so much perhaps of wild woodlands, like Faunus, as of groves and more ordered plantations; and in this capacity he also presided over hedges and boundaries of fields. He is represented as an old man bearing a young cypress tree on his shoulder.



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JUPITER, HEAD OF THE ROMAN PANTHEON

Jupiter Optimus Maximus (Greatest and Best), although identified with Zeus, kept his individuality as father of the Roman State. Nevertheless, the eagle and the three-headed dog Cerberus, which mark him here as ruler of the world above and the world below, are both Greek attributes.



FORTUNA, THE BENEFICENT GODDESS

Tyche, the Greek personification of Luck, good or bad, became as Fortuna a deity of much greater importance. Leaving her capricious wheel and assuming the Cornucopia, she is now the goddess of Good Fortune, and of the Destiny of Rome.

fore, that at the close of the Republican period temples were falling into decay, and it was impossible to fill such of the higher religious offices as conferred no political power on their holders.

In the first centuries of our era, however, scepticism gave place to credulity. In philosophy itself a revival of Platonic influences laid a renewed emphasis upon the immortality of the soul, borrowed the physics of a geo-centric astrology, affirmed the existence of a countless host of intermediate spiritual agencies, and sought for a method of approach to the Good in a mysticism which transcended reason. The increased vogue of vulgar superstitions and the popularity of all kinds of magic and wonder-working bear similar witness to this change of temper.

In the meantime, however, a last attempt was made to restore the old order by Augustus (31 B.C.—A.D. 14), who hoped thereby to secure a religious sanction for his new political regime, and to recapture something of the old Roman discipline and simplicity. He rebuilt old temples, restored old priesthoods, and revived old ceremonies. But into bones so dry no life could now be breathed. It is significant that the most far-reaching of his innovations, emperor-worship, was not a restoration but an addition borrowed from the Græco-Oriental culture of the Levant. Not only did it become the rule to offer divine honours to emperors after their death, but throughout the provinces the worship of Augustus and Roma—i.e., the reigning emperor and the imperial might of Rome, was officially celebrated. In Italy direct worship of the person of the living emperor was forbidden.

The attitude of the Roman State towards Eastern cults during the Republican period remained upon the whole hostile, not upon grounds of religious intolerance so much as from political distrust of secret associations and a dislike for the excesses of emotional rituals, which in some cases amounted to offences against public morality. Thus between 59 and 48 B.C. no less than five attempts were made to suppress the cult of Isis, which had entered Italy with the merchants of Egypt. But in fact the Oriental cults had come to stay, and the number of their adherents steadily increased even under the Republic. During the early Principate Egyptian Isis received official recognition, and in the third century the cults of Syrian Baal and Persian

Mithras, both of which were associated with solar monotheism, in turn enjoyed the patronage of Roman emperors.

The appeal of the various Oriental cults rested mainly upon characteristics common to all. They addressed themselves to the individual soul. They preached a gospel of expiation and redemption, and held out hopes of obtaining posthumous bliss through the performance of religious duty. They based their doctrines upon a religious philosophy which, if the premises were conceded, gave an intelligible basis to their claims. They appealed by ceremonial and mystery to the sensuous element in religious psychology.

Of these religions the most serious rival of Christianity appeared at one time to be Mithraism. It was a composite religion, with its roots in the worship of the old prehistoric Indo-Iranian peoples. It had been modified by Zoroastrian, Babylonian, and Hellenic influences. Mithras, a divinity of light, had endured upon earth a life of beneficent toil, fighting on the side of Good against the Power of Evil. Human life is a battlefield, in which man, with Mithras at his side, is similarly engaged in warfare on the side of Light against Darkness. After death Mithras, the Mediator, will preside at the judgment of his soul, which, if acquitted, will pass upward through the seven planetary spheres, shedding at each stage a part of its mortal impurities, until at the end it is absorbed into Eternal Light. Purity, truth, fortitude, endurance, and renunciation were the virtues upon which this soldiers' creed laid emphasis.

Its chapels are found wherever Roman legionaries were stationed. They consisted of natural caves or vaulted subterranean chambers with a central nave flanked by benches, and invariably adorned with a representation of Mithras slaying the bull from the blood of which originated all forms of life. Each community was united in a close solidarity; its head was called Father of Fathers, and the members addressed each other as Brother. There were seven progressive grades of initiation, Ravens, Hidden Ones, Soldiers, Lions, Persians, Runners of the Sun, and Fathers, and the members wore costumes or masks corresponding to the names of their grade. The first three grades consisted of lay members; only after reaching the grade of a Lion did the initiate become a full participant. Baptism,



The Uffizi Gallery, Florence. Photo by Alinari.

POMONA, LOVELY MAID OF THE ORCHARDS

As Flora typified the flowers of spring, so Pomona the fruits of autumn. The goddess of orchards, she is represented with fruit and laden boughs. These names are typical of early Roman religion—little more than abstractions of the Latin words for flower (*flos*) and apple (*pomum*).



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SATURN, THE GOOD KING OF OLDEN DAYS

Saturn was an old Italian agricultural divinity, represented with wheat-ears and sickle, whose reign on earth was the Golden Age. He was identified with the Greek Cronos, and his wife Ops with Rhea or Cybele, the Magna Mater of a later cult.



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MITHRAS, GOD OF LIGHT, PERFORMS THE MYSTIC SACRIFICE

Mithras, originally a Persian sun-god of Zoroastrian characteristics, became of great importance in the Roman world, especially with the army, during the late Empire. Carried world-wide by the far-flung legions, his was a religion that resembled Christianity too much, and was therefore bitterly persecuted by the Early Fathers, until, with the crumbling of Rome's military power, it finally passed away completely.

sealing with a brand, and a variety of tests and symbolic renunciations figured in the initiatory rites, and one of their ceremonies commemorated in a sacred meal that of which Mithras partook with the Sun immediately before his departure from earth. The many curious, though for the most part accidental, resemblances to early Christianity indeed lent a special violence to the attacks of the Christian Fathers, who regarded Mithraism as a diabolically inspired parody of the True Faith.

ANCIENT ARTS AND CRAFTS. VIII
THE STORY OF AGRICULTURE AS
PICTURED ON THE MONUMENTS

BY DONALD A. MACKENZIE

THE STORY OF AGRICULTURE AS PICTURED ON THE MONUMENTS

BY DONALD A. MACKENZIE

Author of "Egyptian Myth and Legend"

THE wonderful civilisation of ancient Egypt, which endured for at least forty centuries, was based on the agricultural mode of life. Its early Pharaohs were farmer-kings, and had themselves so depicted by their sculptors. A monarch like Amenemhet I. of the twelfth dynasty, who reigned, according to the minimum system of dating, from 2000 till 1970 B.C., was proud to record in his famous "Instruction," written for the benefit and guidance of his son and heir: "I grew corn. I loved the god Grain (Npr); in every valley the Nile begged of me. None hungered, none thirsted during my reign. All were well pleased with what I did, and said concerning me, 'Every commandment is wise.' " In like manner the great lords recorded in their tomb-inscriptions how they had extended irrigation works and promoted the interests of the farmers and farm workers in their domains.

The laws of Egypt were similarly rooted in the agricultural mode of life. In the legend of Osiris, as preserved by Plutarch, it is told that when he became king of Egypt he applied himself towards civilising his countrymen by turning them from their former indigence and barbarity, that he taught them how to cultivate the fruits of the earth, and that he gave them a body of laws whereby to regulate their conduct. In his Paradise the souls of the dead cultivated the land and sowed and reaped grain as they had done during life. No one was admitted to that realm of bliss, however, who could not state truthfully: "I have not

turned aside the water (from a neighbour's field) at the time of inundation. . . . I have not cut off an arm of the river in its course." In the "Book of the Dead," Osiris, with whom the dead Pharaoh was identified, is made to explain (in Breasted's translation): "The gods live as I, I live as the gods, I live as 'Grain' (Npr, god of grain), I grow as 'Grain' . . . I am barley."

It was in Egypt's Predynastic Age, some centuries before 4000 B.C., that agriculture was introduced into Egypt. From the stomachs of predynastic Egyptians, whose bodies have been preserved in the warm and dry sands of the Nile valley at Nagad-der, quantities of food have been taken, and among these have been found husks of barley and millet, portions of root tubers, and other plants, as well as fish scales and fragments of fish and mammalian bones. There can be no doubt, therefore, that the change from hunting to agriculture as a mode of life was of great antiquity in the valley of the Nile, and it is of special importance to note that the barley and millet cultivated were native to Egypt.

When the discovery of agriculture was made the interests of the predynastic Egyptian were greatly extended beyond tracking animals and studying their habits. He found it necessary to measure time, and in this connexion he became the pupil of the Nile, the most wonderful river in the world, which from time immemorial has been rising in flood once a year and depositing on the sands of Egypt fresh quantities of rich alluvial soil impregnated with fertilising properties.

The story of agriculture in Egypt begins, indeed, with the Nile. On its banks the early people found growing wild the barley and millet grasses which they discovered to be suitable for food. It was perceived that these grasses grew best when they received ample nourishment from the irrigation pools and channels formed by the generous river. By imitating nature, the early agriculturist learned how to irrigate the wastes and make the desert "blossom like the rose"; while by making records of the movements of the river and the waxing and waning of the moon, he was enabled to introduce the calendar which Julius Cæsar imported into Rome, and which is now, with subsequent adjustments, used all over the civilised world.

Egypt, which first gave us the calendar, is, as Herodotus put it, "an acquired country, the gift of the river." The Nile is



HERDS OF CATTLE FROM A CAPTURED TOWN WERE THE FRUITS OF VICTORY

The herdsman's duties were no less a care than seed time and harvest to the settled and civilised peoples of the past. Good cattle were highly prized, and the value of merchandise (and even wives) was frequently calculated at so many head of oxen. The famous bronze Balawat gates give us a glimpse of Assyrian pastoral life—pastoral, that is, but not peaceful; for the goats and sheep that are being driven across the scene are probably the spoils of war, possibly the very cause of the war itself. Indeed, we cannot doubt that silent though the monuments are on the point, economic motives for war were as strong in ancient times as to-day.



VINTAGE-TIME ON THE ESTATE OF AN EGYPTIAN PRIEST

Another panel from the tomb of Nakhti shows us further scenes of husbandry and country life. Before Nakhti, sitting in his pavilion, offerings of fish and game and grapes and dates are brought; birds are being plucked and trussed and hung up to cure; a fowling-net on the right has been cast in a reed-brake; but perhaps the most enthralling scene of all is the vintage—grapes being gathered from an arching vine and trodden out in the wine-press, and their juice collected and stored in amphoræ.

about 4,000 miles in length, and stretches across the golden desert sands to the east of the vast Sahara Desert, like a ribbon of cobalt-blue, fringed by banks of green vegetation. The long narrow valley which is Egypt is enclosed for the greater part by strange pink hills, and shrinks in places to the dimensions of some modern farms, while elsewhere it is from ten to thirty miles in breadth. When the Nile approaches within a hundred miles of the Mediterranean it forms the broad Delta of Lower Egypt. The great river has a double source of supply. In Nubia it is fed by the Bahr el-Azrek, or Blue Nile, and the Atbara, which are greatly swollen in August and September by the melting snows of the Abyssinian mountains, and from an earlier period the Nile is flooded by the waters of the great equatorial lakes which are increased by heavy tropical rains and sweep down the main stream, the Bahr el-Abiad, or "White Nile." After the period of inundation the river gradually subsides and shrinks. Before the Assuan barrage was constructed for the purpose of storing the surplus waters, the Nile used to sink at its lowest so low that in parts it became not only very shallow, but almost motionless.

The Low Nile period was in ancient times one of sterility as it was, and is, one of great heat. An ancient twelfth dynasty official who had to visit the Nile Land in this season reminds us in an inscription that in summer "the hills are hot . . . the rocks brand the skin." For the fifty days known to modern Egyptians as el-Khamáseen, burning winds from the south are of frequent occurrence, the most oppressive being the "simoom" which sweeps out of the south-east with darkening clouds of sand and dust, blotting out the landscape, lashing the Nile into stormy fury, and seeming to set the surface of the whole valley in motion. This is the period favourable for the visitations of plague and other diseases, when the vitality of the natives is reduced, when sand is chewed with food, and enters ears, nostrils and eyes. The atmosphere is hazy, the desert dazzling, the black soil on the river banks cracked and barren. Vegetation survives only where irrigation is rigorously attended to; the simoom coats every green leaf with yellow dust, and Egypt seems to be relapsing back into the wastes of the Sahara and eternal death.

Then towards the end of May, comes welcome relief from tropical heat and discomfort, for the cool north wind, the Etesian

wind of the Greeks, begins to blow from the green Mediterranean, the Great Green of the Egyptian texts. It tempers the atmosphere; it clears vegetation of accumulated dust; it seems to be the very "breath of life" to exhausted Egypt. In the songs and other writings of ancient times the north wind is welcomed and lauded for its refreshing coolness.

The next symptom of the approaching change is the appearance of the star Sirius, the Greek Sothis. On that magical June night, called by modern natives Leylet-en-Nuktah ("Night of the Drop"), a "tear" from the star is supposed to fall into the Nile and cause it to rise. This star was anciently identified with the mother-goddess who nourished her human children; the welcome tear fell into the Celestial Nile beyond the horizon before the star actually appeared to human eyes.

When the river begins to rise it carries down the green scum of the equatorial waters which have long lain stagnant and slimy, and for three or four days Egypt is watered by the "Green Nile." In the Pyramid Texts Osiris is identified with the green life-giving substance in the "new water," as he is with the soil and with the vegetation which the water causes to sprout. Pyramid Text 589 reads as follows: "Horus comes! He beholds his father in thee, Greenness, in thy name of 'Water of Greenness.'"

About a fortnight later the rising waters become deeply tinged by red clay until the Nile resembles a river of blood. This is the Red Nile, and the "blood" was anciently supposed to be that of the slain Osiris. The solar cult, however, had a more complex doctrinal explanation of it as a flood of blood-impregnated beer which made the man-slaying sun-goddess drunk and transformed her from a malignant into a beneficent deity.

By the beginning of August the Nile, overflowing its banks, inundates the narrow valley, isolating villages situated on elevated portions or protected by dykes of sand, so that, as Herodotus put it, they resemble islands in the Ægean Sea. When the "new water" has moistened the sterile sand, Egypt is transformed as if by magic. Life is renewed again, insects seem to have spontaneous generation, mice creep from cracks in the sun-baked clay to escape drowning and are believed, even by modern Egyptians, to have been created from mud by the life-giving water, grass springs up, barley-seeds lying in the dry sand sprout sud-

denly, the trees and shrubs put forth brilliant and scented blossoms, and the whole valley is infused with freshness, activity, and beauty. Thus, at the close of the hot season Egypt is drenched with life-giving water. From October till March is the cool part of the Egyptian year, but it is warm enough to make cereals flourish so that they may be duly ripened at the beginning of the hot season.

After the flood shrinks and the Nile subsides within its banks—that is, about the time of our winter solstice—the fields are cultivated and sown.

“In no country,” wrote Herodotus, “do they obtain the produce of the field with less trouble. . . . The husbandman waits till the river has of its own accord spread itself over the fields and withdrawn again to its bed, and then sows his plot of ground, and, after sowing, turns his swine into it—the swine tread in the corn—after which he has only to await the harvest. The swine serve him also to thrash the grain, which is then carried to the garner.”

Every stage of agricultural operations in ancient Egypt is represented in the tombs, those artistic treasure-houses of antiquity, those libraries of inscribed stones. We see in one Theban tomb-picture an Egyptian worker of the Empire Period laboriously drawing water from the Nile to supply an irrigating channel, by means of that immemorial contrivance, the *shâdûf*, which is still used in modern Egypt. It is formed of a long pole poised on a prop and placed at a right angle to the Nile; one end of the pole is weighted by a big lump of mud, and suspended from the other is a skin bucket. The worker, seizing the rope, bends his back and dips his bucket, which is lifted full of water by the weighted pole, and then pours its contents into the canal. For thousands of years the fields of Egypt have been irrigated in this way. Artificial lakes were also formed and were automatically filled at the season of inundation. Tomb-pictures of villas show in their gardens the pools in which their owners bathed, and on which they sailed in pleasure boats to hook and spear fish, or to enjoy the cool of the evening and the moon-bright night. These pools also served to irrigate the gardens during the period of the

Low Nile, and gardeners are depicted using shâdûfs, or carrying water-buckets suspended from shoulder-yokes, to water flowers and fruit trees round which the earth had been banked up so as to retain as much moisture as possible.

The inundation scenes in the tombs are invariably of animated character. Men are shown wading and in skiffs, rescuing cattle which were isolated on rapidly shrinking sand-banks by the surging flood. When the river bursts its banks in modern times cattle still gambol in the refreshing water, and shoals of fish are carried into the shallows; man and beast rejoice in the life-renewing flood. In the old tomb-pictures the artists have made not only the herds but the cattle smile and look active and well contented. Here and there an Egyptian squats on a bank to catch fish. But the shadow which haunts human joy is never absent, for the watchful crocodile is shown crouching near cattle and men patiently awaiting his opportunity.

The Beni Hassan tomb-pictures of the Middle Kingdom Feudal Age show the farm servants of the great lords breaking up the drenched soil after the flood has subsided. Some used the ancient A-shaped wooden hoe, with its inward curving and pointed blade and longer handle, strengthened at the centre by a twisted rope. Others use a wooden plough, drawn by two oxen; one man held the plough and another carried a goad to urge on and direct the slow-moving animals. Behind the ploughmen or men with hoes we see the sowers scattering the seeds in a steady stream.

The custom of driving swine on to the fields to tread in the grain, referred to by Herodotus, is illustrated in the tombs, but not, so far as has yet been found, in any earlier than the eighteenth dynasty, which was that of Tutankhamen. Sheep and goats, cattle and asses were, however, used for this purpose. It may be that the pig, although an "abomination" to the Egyptians, came into general favour at seed-time, because of its habit of grubbing the soil and devouring roots and weeds as well as worms, snails, etc., for the pig is a natural scavenger. In an Old Kingdom picture three shepherds are shown driving a flock of horned sheep over a newly sown field, which must have been extremely wet, because the man in front sings a humorous song, written in hieroglyphics:



THE HOE AND THE PLOUGH ON THE BANKS OF THE NILE 3,000 YEARS AGO

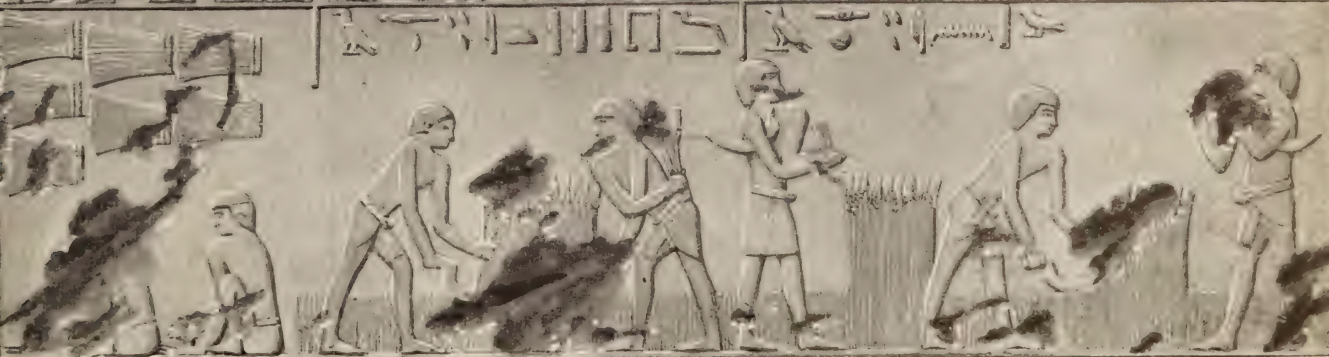
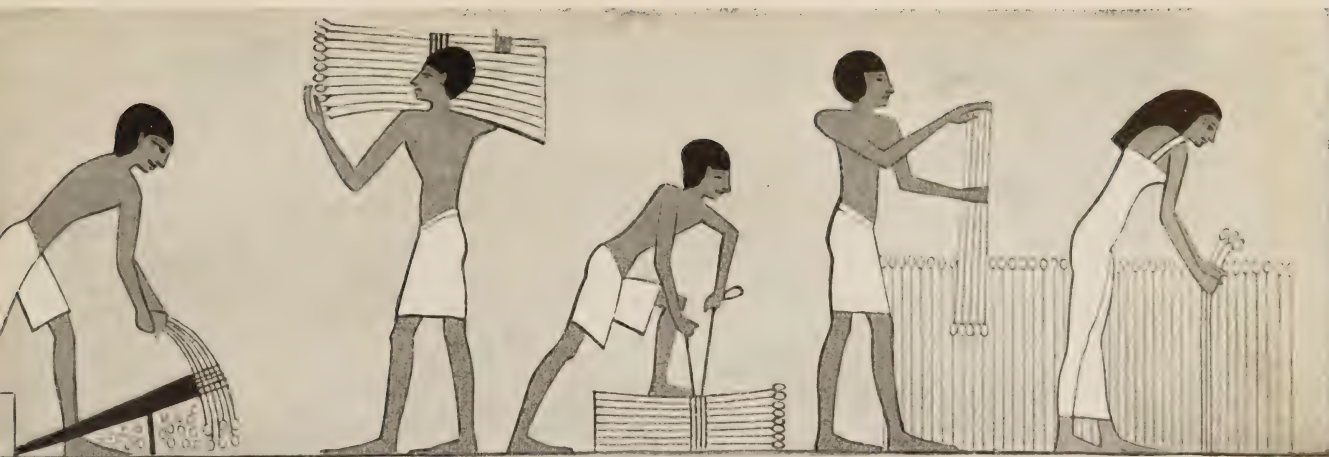
This scene of ploughing, hoeing and sowing is on the walls of the tomb of Nakhti at Sheikh Abd-el-Kurnah; Nakhti was in the service of the Temple of Ammon, at Thebes, in the eighteenth dynasty. The scene is the canal-water Nilotic plain. It will be observed that the plough has sensibly developed since the fifth dynasty implement shown on the next page being much more massive; also that the seed is now sown behind and not in front of the plough. Labourers are also shown with hoes, and breaking clods with hammers. Above, Nakhti and his wife, Tani, are making offerings to the gods, while a slaughtered ox is being dismembered.



After illustrations in Wilkinson's "The Ancient Egyptians" and "The Rock Tombs of Sheikh Said," by N. de G. Davies.

SEED TIME AND HARVEST IN THE LAND OF EGYPT, WHERE THE YEARLY—

Bottom half of the page: One of the most complete records of the husbandman's year comes from the walls of a rock-tomb at Sheikh Said, the tomb of one Urarna, a priest in the reign of User-en-ra of the fifth dynasty. The upper panel shows the operations of sowing. On the left are the scribes; one records the issue of two bags of seed-corn to an overseer. Next come the sower and the ploughs; it will be observed that the seed is cast, not into the furrow as with us, but before the plough, which comes after and covers it. The beasts employed are cows, not oxen; from a yoke fastened to their horns the pole passes to the plough, presumably between the two of them, but shown here outside for the sake of omitting nothing; while the instrument itself is more of a



—FLOODING OF THE NILE SPILT LIFE OR DEATH TO CROPS AND MEN

hoe, deep ploughing not being essential in the soil of the Nile valley. After the two ploughs comes a flock of sheep further to tread in the grain. In the lower register flax is being pulled by hand on the left, and barley reaped with sickles on the right; one reaper refreshes himself with a draught of beer, another rubs ears of corn in the hand. The four illustrations from tombs at Thebes and Eileithyas at the top of the page show similar scenes of agricultural life, among them (on the left) the operation of pouring the grain from baskets on to the threshing-floor where it is trodden out by cattle.



A DEVICE STILL USED IN EGYPT AND THE EAST FOR WATERING THE FIELDS

Apui, a graver in the reign of Rameses II. of the nineteenth dynasty, had his tomb in the valley of Deir el-Medinet. On its walls is to be found an excellent representation of an irrigating system, still in use to-day, worked by two slaves who, beneath the shade of sycamore trees in a garden, are drawing water from a pond fringed with aquatic plants. The "shādûf" consists of a long pole with a leather bucket at one end and a counterpoise at the other, balanced on a support; on being pulled down so that the bucket is submerged, it swings back again by the help of the weight.



Phototype, Saggag, Geneva.

OXEN OF ANCIENT EGYPT TREADING OUT THE CORN

From the mastaba of Ptahhotep and Akhenhotep, at Sakkara, comes this really excellent representation in low relief of cattle on the threshing-floor. At every turn, in considering the most diverse aspects of Egyptian life, we are arrested to marvel at the wonderful qualities of Egyptian artistry. This scene of treading out the corn transports us at once to the immemorial East; apparently the dwellers by the Nile were no less humane to their dumb servants than Moses, who would not suffer the ox at this task to be muzzled.

Among the fish the shepherd
Through water makes his way,
He chats with some and to the rest
He shouts the time of day.

The ancient Egyptian workers seem to have been as great talkers as are their modern descendants. It was sorrowful to them to be without company. In an old papyrus a very melancholy man bemoans his lot in solitude, and says he has no one to talk to except the fish. The ancient and very human artists, in their agricultural scenes, show gossiping couples as well as vocalists.

In the harvest scenes there are occasional interesting glimpses of everyday life. The reapers were followed by girls, who acted as gleaners like the Biblical Ruth, and in one tomb-picture a couple are depicted quarrelling, each tearing at the other's hair; another couple of girl gleaners are squatted on the ground, one being engaged in extracting a thorn from the foot of her friend. Boys waited on the harvesters with skins of water, or beer; youngsters slept in the shadows of trees, while their parents toiled in the hot sun; a song or a merry tune from a reed instrument might be provided by an accomplished youth.

The harvesters set to work in methodical manner, and on big estates they were under the direction of overseers, who carried their staffs of office, and wielded them on occasion to punish sluggards. Different methods of reaping obtained. At an early period, flint sickles with minute saw-like teeth set in wooden handles were used. Toothed copper sickles subsequently became common. Some harvesters pulled up the barley by the roots, as still do some small farmers in the uplands of Crete, and as did the natives of St. Kilda when they were visited by Martin in the seventeenth century. Those Egyptians who used the sickles cut the straw a little below the ears. The sheaves were bound so that ears protruded from both ends, and were piled up sideways on the fields. Short-cut ears were placed in nets or baskets, which were swung on a pole and carried shoulder-high by two men, or in wicker panniers placed on the backs of asses. The scribes of the great lord made careful records for his perusal of the loads of grain carried from the fields.

Open-air threshing-floors of circular shape were used for separating the grain from the husks. The threshing was accomplished by driving animals over the ears. Oxen were commonly used, as is shown in the tomb-pictures, although Herodotus refers to swine. The Hebrews, likewise, used the large animals. "Thou shalt not muzzle the ox," the faithful were instructed, "when he treadeth out the corn" (Deuteronomy xxv. 4). The chaff was separated from the grain by workers, who winnowed with small wooden hand-shovels, tossing their contents into the air, and, no doubt, this work was done chiefly on windy days. The scribes who supervised at every turn recorded the quantities of grain carried in measures to the granary.

After the fields were reaped, and the straw which the reapers left standing had been laboriously pulled up to be used as fodder for cattle, the land was ploughed again and another crop grown with the aid of irrigation. Even as many as three separate harvests might be reaped in a single season.

In addition to a cereal the Egyptians had a papyrus harvest. The stalks were plucked in the marshes and packed into bags, which the workers carried away on their backs. From the papyrus the Egyptians made small boats, ropes, sandals, and the strong and enduring "paper" used by the scribes. Flax was widely cultivated, and from it the female workers made linen of different qualities, the best being almost as fine as silk. Even in predynastic times an excellent linen was manufactured. Root crops, herbs, and fruit trees were likewise cultivated. The vine was grown all over the land of Egypt. According to the Greeks it is native not only to Egypt, but to Greece, Syria, etc., and even the islands of the Mediterranean. Homer refers to it in the isle of Ogygia. "About the hollow cave," he sings, "there trailed a wild rambling vine with goodly clusters" (Odyssey, v. 69). No doubt the seeds of the vine were widely distributed by migrating birds.

As has been stated, barley and millet grow wild in Egypt. But the Egyptians did not find wheat in their native land, nor did they cultivate it until they had been growing barley for several centuries. Wild wheat has been discovered on Mount Carmel, and for a time it was thought that the Egyptians obtained the seeds from that locality, but Professor Biffin, Cam-

bridge, has found it is useless for breeding purposes, and that it has peculiarities which render it impossible to be grown so as to be suitable for harvesting. A wild wheat found in Mesopotamia becomes sterile when crossed with Carmel wheat, and is evidently not ancestral to the cultivated varieties. Dr. Thomas Cherry (late Professor of Agriculture at Melbourne) has suggested that wheat, which has not the sharp protective awn of barley, evolved on an island where it was not subjected to the attacks of land birds, and he favours Delos, which is a breeding-place for sea birds. It lies near Melos, where obsidian was found, and Naxos, from which the Egyptians obtained emery, even as far back as predynastic times. The suggestion is that the wheat seeds were carried to Egypt by its ancient mariners. That wheat was cultivated in Egypt before it was cultivated in Mesopotamia is suggested by the fact that the Sumerians of the pre-Babylonia Age in that area called it, as Breasted has pointed out, by its Egyptian name. Irrigation was practised in Mesopotamia as in Egypt, but the Tigris and Euphrates could not, like the Nile, have revealed to early man the secrets of agriculture. These great rivers rise in flood, but do not subside, as does the Nile in Egypt, early in the cool season, but in full summer when no rain falls. No crop could come to maturity in Mesopotamia in ancient times without irrigation, while in Egypt exactly the opposite was the case; the wild barley flourished during the cool season in the naturally-irrigated area, and, having ripened, sowed itself early in the hot season. In almost rainless Egypt the seeds were preserved in the dry sand until the inundation caused them to sprout. So far as our knowledge goes, it would appear therefore that the agricultural mode of life had origin in Egypt as had the calendar, and that, therefore, the tomb-pictures, which show us the early farm workers employed in the Nile valley, are of the greatest importance not only in the history of agriculture but of civilisation itself. Before mankind discovered how to grow and store an adequate food supply, the world was thinly peopled. Hunters required large areas over which to operate, and as they could not control the movements of animals, they must have suffered from periodic famines, accompanied by heavy death-rates. By growing corn the early farmers accumulated wealth, and wealth brought leisure. When man obtained leisure he made rapid

progress as an inventor. Denser communities could live in areas suitable for the agricultural mode of life than was possible when men were merely hunters. Laws became a necessity. Society had to be organised and governed, and life and property protected. As the population increased, so did its needs. The farmers provided food in abundance, but Egypt required wood, metals, etc., and, to procure these, deserts and rivers and seas had to be crossed. Progress was forced upon early man by the dictates of sheer necessity, and, as it developed, isolated communities were brought into touch with one another, with the result that the new mode of life, the new means of obtaining and storing a food supply, spread far and wide. The farmer who first sowed the seeds of wild barley in the first irrigated field sowed also the seeds of modern civilisation, and inaugurated a new era with new traditions in the history of the world.

THE GREAT MONUMENTS. VII
THE STONE AGE MARVELS OF MALTA
BY T. ERIC PEET

THE STONE AGE MARVELS OF MALTA

BY T. ERIC PEET

Professor of Egyptology, Liverpool University; author of "Rough Stone Monuments and their Builders"

WE are indebted to the courtesy of Dr. Zammit, curator of the museum at Valletta, for the very fine series of illustrative photographs that accompany this important contribution on one of the most fascinating of the many archæological problems of the remote past.—EDITOR.

THE casual visitor to Malta brings away with him the impression of a barren island whose landscape is carried out entirely in the greys and browns of limestone, without the aid of green, except from the occasional carob-trees. The archæologist comes and comes again, for in the very stony nature of the country lies the reason why the monuments of prehistoric times still stand almost in their original freshness. Malta, in fact, is one of the most perfect spots in the Mediterranean for the study of what are known as megalithic monuments.

A megalithic building is, of course, one built of large stones. Yet, if we accept this definition without qualification, we shall have to class the pyramids of Egypt, and perhaps also S. Paul's Cathedral, as megalithic monuments. To the archæologist the term has a more special and a narrower meaning. It is used of monuments not only built of very large stones, but conforming in plan and design to certain general types, falling to some extent, into the same period of prehistory, and apparently, with exceptions, belonging to one and the same general culture circle. The best known types of megalithic monument are: (1) The menhir, a tall pillar of stone set upright in the ground; (2) the dolmen, a tomb made by setting an enormous flat block of stone

over a number of upright blocks placed so as to enclose a small chamber, circular, elliptical, square, or rectangular; (3) the corridor-tomb (French "*alée couverte*"), consisting of a dolmen with a long, covered entrance-passage also in stone; (4) the alignment, a series of menhirs set in straight lines as in the famous examples of Carnac, in Brittany; and (5) the cromlech, a circle of upright stones, the most famous example of which is Stonehenge, in England. In some of these cases the stones are entirely unworked, but in others they have been trimmed by the hand of man. In the case of the dolmen it would appear that they were often if not invariably covered by a mound of earth or small stones. In addition to these common types there are others less frequent, which for archæological reasons appear to belong to the same milieu, such as the "*navetas*" or "*naus*" of the Balearic Islands, the "*sesi*" of Pantelleria (tombs), the "*nuraghi*" (dwellings) and the Giants' Graves (tombs) of Sardinia, and last but not least the so-called temples of Malta and Gozo.

For many years it was taken for granted that the only megalithic monuments of Malta and Gozo were the famous temples, but recent research has revealed the existence of a few dolmen tombs of the ordinary type, and it is beyond doubt that more are still to be found and that many have been destroyed. The temples themselves—we give them this name for the moment without discussing whether it is justified—must have been fairly numerous on the islands. Remains of about a dozen are known, of which the most important are those of Hagiär Kim and Mnaidra on the south coast, the three buildings at Cordin above the Grand Harbour at Valletta, Hal Tarxien, not far from these last, and Gigantea on the island of Gozo. The temple in its simplest form appears to have consisted of a concave façade with an entrance leading to two elliptical rooms one behind the other (see second illustration facing this page). In the back wall of the inner room is a recess to which the very misleading name of a "*dolmenic niche*" has been given; in this is a large flat slab of stone of very variable height supported either by two uprights at its extremities (a trilithon) or by a rounded column under its middle. Such are the essential elements of the temple. Its size and detail may be best illustrated by fully describing the temple of Mnaidra, which may well serve as a type.



ENTRANCES TO THE TWO INNERMOST SANCTUARIES AT MNAIDRA

Top picture: This photograph was taken in the outer chamber of the southern temple. The central passage opening into the inner chamber may be seen, and also the immense horizontal slab of the trilithon in the niche of the inner chamber. The lower picture shows a corresponding passage in the northern temple, and the entrance to the small chamber with the stone table in its niche. The punctured ornamentation is noteworthy; it formed a common decoration in neolithic architecture.



APSE OF AN INNER CHAMBER IN THE MNAIDRA TEMPLE

Ashlar masonry and upright rectangular slabs are combined in the temple at Mnajdra. On the right of this inmost chamber may be seen the trilithon in its niche; the central pillar, built in sections, is a modern addition intended to support the impost, which is cracked. In the background is one of the strange spherical stones which are found among the ruins.



COMMUNAL TROUGH FOR GRINDING CORN AT CORDIN

In a group of ruins at Cordin, overlooking the Grand Harbour of Valletta, lies a long stone grinding-trough with several compartments, before which one can imagine the women of far-off neolithic days crowding in a row and grinding corn for the community. Of the people who raised the mysterious Maltese temples, at least we can say that they were on the way to becoming agricultural; although from other indications it would appear that their development along these lines was somewhat rudimentary.



VIEW OF MNAIDRA SHOWING HOW THE MALTESE PLANNED THEIR WONDER TEMPLES

The temple of Mnajdra is built on a height looking across the sea to the desert island of Filfla; the building consists of two halves, each in itself a separate temple, and an idea of the conventional shape of all such megalithic shrines may be gathered from these remains, which are typical in that they both consist of two elliptical chambers built one behind the other of rough-hewn square slabs. The southern temple (on the right) is, as may be seen, of less complicated design than the northern, which has in its inner chamber a trilithon of immense proportions. The photograph is of a cork model in the museum at Valletta.



GREAT MONOLITHS FORMING THE WALLS OF THE STONE AGE SHRINE AT HAGIAR KIM

The stout building and the virtual indestructibility of such ancient temples as these can be well judged from the photographs above. They are both of the Hagiar Kim remains. The top picture shows a portion of the eastern wall with a niche containing a stone pillar which had probably some votive significance. A good example of the crude outer masonry is given below. There are five separate walls inside this outer one, and the intermediate space between these walls is filled with a strengthening accumulation of earth and stones. Impregnable as a fortress must have been this ancient shrine.

The temple of Mnajdra lies on a ridge overlooking the almost inaccessible south coast of the island. Seaward there is a magnificent view out to the little desert island of Filfla, while on the land side the temple of Hagiar Kim is visible only half a mile away across a shallow valley. The building itself consists of two halves, of which the more northerly is probably a later addition. Each half comprises a complete temple as already described, namely, two elliptical chambers one behind the other, with a niche in the back wall of the inner. The walls consist of large, roughly squared blocks of stone set on edge. These average 6 feet in height, and are surmounted by several courses of horizontal blocks rising another 8 feet. In the apses of the rooms these upper blocks are corbelled, that is to say, each course projects inwards over the course below it in such a manner as to form eventually a complete roof. When the buildings were intact the two apses of each room were roofed in this way, but it is not unlikely that the central portion of each room stood open to the sky. This method of building, namely, the use of upright slabs surmounted by coursed and corbelled masonry, is characteristic of many types of megalithic structure, and is one of the reasons which incline archæologists to assign these to a single culture-group. In the entrance of Mnajdra and in the passages leading from one room into another the uprights are even more enormous than in the rooms, and there is one which is no less than 13 feet in height. In the case of the southern half, the main niche in the back wall of the inner chamber is itself elliptical in form, and contains a massive trilithon, visible in the upper illustration facing page 716 through the equally massive doorway.

The northern half of the temple of Mnajdra is of more complicated design than the southern. It contains a niche with the finest trilithon in the whole building, the cover-slab being 10 feet long and the supports 5 feet high. One of its smaller chambers is well shown facing page 716. Its entrance consists of an upright slab of stone, in which is cut a large, rectangular hole through which one may pass with no great difficulty. This is finally framed by two upright side-posts and a lintel, the whole doorway being ornamented with the punctured decoration typical of the finer work in these Maltese temples. Through the aperture can be seen in the photograph the stone table resting in its niche on

a column of stone of which half is visible on the left. This table is only 32 inches high. In addition to this central niche the chamber contains two more, one to the right of the doorway and one to the left as one enters it.

The temple of Hagiär Kim is more complicated in plan than that of Mnaidra, though the essential elements remain the same. It appears to have been considerably modified and added to from time to time, and contains a few elementary examples of the carving so finely represented at Hal Tarxien. Gigantea, on the island of Gozo, is in some respects the greatest of all the temples, for its walls are still in part preserved up to a height of 20 feet.

The temple site at Hal Tarxien was only discovered in 1915, and its excavation is even now only just complete. Here the remains of three successive temples were found, and in the two later were numerous examples of carving in relief on the stonework, which show that the masons of this period had attained to very considerable skill in the carving of conventionalised naturalistic designs. On the other hand, the attempts to portray animals, of which there are two examples (bulls, a sow, etc.), are extremely crude. Sculpture in the round had not advanced very far, as is clear from the stone statue of a steatopygous female.

Besides erecting huge structures above ground the builders of Malta also worked beneath the earth. In the village of Casal Paula, a short tram ride from Valletta, is the hypogeum of Hal Saffieni. At its entrance there once stood a small megalithic building above the ground. This led down into a series of subterranean chambers cut by stone chisels in the soft limestone rock. These chambers, which are irregular in plan, are arranged in two storeys connected by a staircase. No one who has seen them can fail to observe that they are the reproduction in solid rock of the ordinary above-ground megalithic building. The doorposts, the lintels, even the corbelled roofs, all are there, though they have no structural significance. Two of the simpler chambers call for special notice since their roofs are adorned with a design in red paint precisely similar to those shown in relief at Hal Tarxien. It can hardly be doubted that this place was originally, like the temples, a sanctuary of some kind. It was, however, used later as a burial place, and many of its rooms were



CARVED OFFERING-TABLE IN THE TEMPLE AT HAL TARXIEN

Hewn from a mighty rock and finely carved with spiral volutes is this block that lies before a trilithon of finely-polished rectangular slabs in its inner niche. It was probably used as a table for votary sacrifices and is placed in the innermost temple of the Hal Tarxien buildings.



DEDICATED TO THE WORSHIP OF A LONG FORGOTTEN DEITY OF THE NEOLITHIC AGE: THE TEMPLE OF GIGANTEA, AT GOZO

Four miles north-west of Malta, on the little island of Gozo, are the remains of the temple of Gigantea, very similar in construction to that of Hagiar Kim; we notice the same use of gigantic boulders in both temples, and again we wonder how without the assistance of modern mechanical devices these mighty pillars were hewn, and carried, and set up. The picture shows the principal court and front apse, and the figure of the woman seated on the right will help the reader to judge, by comparison, the enormous bulk of the monoliths.



CARVED WITH CHISELS OF POLISHED STONE: ORNAMENTAL WORK AT HAL TARXIEN

These photographs present two more examples of the very fine scroll work that is the commonest decoration of the neolithic temples. The carved block in the top picture lies at the entrance to the third temple. The source of the motive of these decorations is a debatable point, but the beautifully executed branched spirals which adorn the monoliths in both photographs are thought by Sir Arthur Evans to reflect a Cretan influence.



VIEW LOOKING DOWN ON THE HAL TARXIEN COMPLEX

This photograph is of a cork model in the Valletta Museum; it shows the recently discovered temples at Hal Tarxien, most involved of all the sites. The outlines of three successive temples may be traced, two of them comparatively late, as may be judged from the advanced ornamentation and examples of rude statuary found in them. All, however, preserve the tradition of oval chambers and altar-like niches that prevails throughout the Maltese remains.

found filled almost to the roof with remains of human bodies, accompanied with a liberal funerary equipment consisting of implements, ornaments, vases, and so on.

The description of remains is, however, merely the dry bones of history. What of the men who built these sanctuaries? When and how did they live, what civilisation did they enjoy, and how and with what purpose did they manage to erect these huge and unwieldy blocks?

The temples, to which the epithet Phœnician has so often been attached, have nothing to do with the Phœnicians, but were erected by men who inhabited Malta in the Neolithic or Later Stone Age. No object of metal has as yet been found in any of the temples, and although this is but negative evidence, it is cumulative. What is more, in excavating a part of Hal Tarxien, a stratum of dark earth was found containing burial urns of the metal age accompanied by daggers and axes of copper or bronze. This stratum was separated by no less than 3 feet of gradually accumulated earth from the floor of the temple, making it quite clear that the temple had already long been abandoned when these metal-age burials were deposited. The builders of the temples worked with tools of flint and polished stone. Their life was simple, they had domesticated the ox and the pig, but we cannot as yet say definitely that they were completely agricultural.

With regard to the purpose of the buildings there is hardly room for doubt. They have none of the features of dwellings, but many of those which are generally associated with primitive sanctuaries or temples. This would seem, for instance, to be the simplest explanation of the curious niches with their trilithons or tables, and of the large stone water basins occasionally found on the floors. It has even been surmised that one small chamber in Hal Tarxien was used to conceal a priest who gave oracular responses, for the wall slab which separates it from the main apse is pierced by a winding hole in which the ready imagination may well see a speaking-tube, through the cautious will of course demand further evidence before accepting such a far-fetched belief.

A sanctuary presupposes a deity. Who was the deity worshipped in Malta? Here we can but guess. It may be that she was a goddess, who is represented by the numerous large and

small statuettes in stone and terra-cotta found in these temples. All these show us a female figure of *steatopygous* type, that is, with an abnormal fatty development of the thighs and hips. On the other hand, Sir Arthur Evans and others have pointed out the significance of the stone pillars still found standing in one, possibly two, of the trilithon recesses, and perhaps originally existing in many more. Here we may have a parallel to a form of *baetylic* religion prevalent in the Mycenaean world, and among certain Semitic peoples, in which the deity was not represented by a graven image but by a tree or pillar standing in a simple shrine. When the evidence is as slight as it is here then fancy is free to roam.

The question which first rises to the lips of the visitor to Mnaidra and Hagiar Kim is, how were these huge stones moved and set up? Surely there is no serious difficulty. The stone was not far to seek, for the surface of the island consists of little else, and given ropes, rollers, levers, numbers, time and patience, the result follows simply enough without having recourse to the supernatural. It has even been suggested that, since trees suitable for making rollers may have been as rare in Malta then as now, their place was taken by the large spherical balls of limestone found in the ruins.



VAST OUTER WALLS AND FINE CARVED WORK IN THE INTERIOR AT HAGIAR KIM

The top picture shows one of the outer rooms at Hagiar Kim, situated on higher ground than the main temple buildings. The masonry is here the roughest in the building and is composed of the largest blocks, in marked contrast to the finer interior work, a good example of which may be seen in the lower picture. The large stone with carved ornamentation forms the entrance to the passage leading to the innermost shrine. Examples of this finer stonework are given in our illustrations of Hal Tarxien.



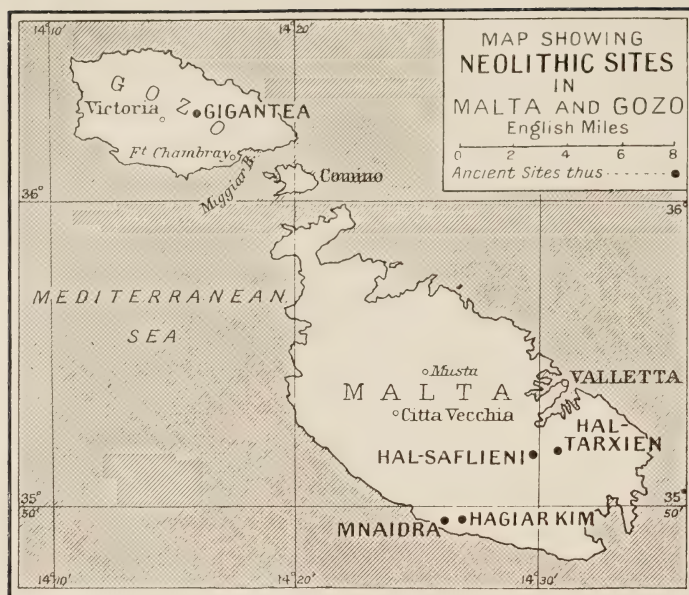
MASSIVE PILLARS IN THE HAGIAR KIM TEMPLE WITH PRIMITIVE ORNAMENTATION SIMILAR TO THAT AT MNAIDRA

The temple at Hagiar Kim, part of which is shown above, is of more complicated design than the Mnajdra temples, and is built on a grander scale, only the largest stones being used. There is one mighty slab 23 feet long by 12 broad, and a great pair standing 20 feet high. How these vast monuments were set up is still a mystery, though some suggest that spherical stones found near the ruins may have been used as rollers for the monoliths, for trees, whose trunks might have served this purpose, were probably as scarce on the island then as now. The monolithic tables on either side of the passage were probably used as altars for sacrifices to the deity of the shrine.



ROCK-CUT DOORWAYS IN THE LOWER STOREY OF THE HAL SAFLIENI HYPOGEUM

The standing temples in Malta have evoked speculation enough, but their appeal to the imagination, ever quickened by things subterranean is as nothing to that of the hypogeum at Hal Saflieni, near Valletta. It consists of underground chambers cut in two descending storeys from the limestone rock, probably for a religious purpose; though at a later, if still early, date they were used for burials. The doorways give the illusion of having doorposts and lintels, but they are all cut from the rock.



PAINTED CEILING OF A HYPOGEUM CHAMBER

Two chambers in the Hal Saflieni hypogeum, of which this is one, are notable for having scroll-designs painted in red on the ceilings. It cannot be doubted that as the features of above-ground temples are repeated in doorways and corbelled roofs, though of no real architectural meaning underground, so these scrolls are reproductions of the reliefs at Hal Tarxien.

THE WONDER CITIES. XVI.

GOLDEN MYCENÆ

By J. L. MYRES, M.A., F.S.A.

GOLDEN MYCENÆ

BY J. L. MYRES, M.A., F.S.A.

Wykeham Professor of Ancient History, Oxford

“**G**OLDEN MYCENÆ,” “of the wide ways,” capital, palace, and fortress of Agamemnon in the days of the Trojan war, lies just as Homer described it long ago, “in a nook of Argos,” the broad and once fertile plain which opens out into the gulf of the same name on the east coast of peninsular Greece.

The sea frontage of the plain is about four miles from the steep fortress and harbour of Nauplia, its earliest as well as its modern port, to the marsh of Lerna, south of Argos town, where Herakles (Hercules) slew the many-headed Hydra, and the railway now begins to climb uneasily up into Arcadian highlands; and level ground extends inland about eight miles to the rough gorge by which road and railway make their way northwards past Nemea to Corinth.

A little to the east of this upper end of the plain, overshadowed by two finely shaped peaks, but separated from them by a pair of diverging torrent beds, nestles a lower spur, inconspicuous now, but once the most notable site of the whole district. In shape, this hill resembles a human right foot cut off at the ankle, and planted with its heel against the mountain flanks and its toes pointing out into the plain. Under the instep is the larger ravine, which has gnawed away the steep slope and made it precipitous with landslips. The main road from the sea and the plain winds up over the great toe to the outside of the angle, turns, and enters the citadel whose rugged fortifications crown the whole like a giant's anklet and enclose all that is left of the

prehistoric palace, and of a Greek temple which was built centuries later over its remains.

Scattered over the lower slopes lay the living-quarters of the town; between them the "wide ways," with their terraced fields, which caught the poet's eye; and among those fields, sunk in solid rock so that only their carved and painted portals betrayed their whereabouts, the splendid family vaults whose ancestral wealth, pillaged perhaps even before Homer's own day, made Mycenæ the "golden city" of his song.

So placed, and commanding alike the wealth of the plain, its corn lands and memorable horse-ranches, and the routes which converge on its upper end from inland valley-states, from the ports and fertile shores of the Corinthian Gulf, and from the farther north by the trunk road of the all-important isthmus, Mycenæ could hardly have avoided the fame and prosperity which befell it so soon as the Greek mainland began to share the dawning civilisation of Crete and the Ægean Islands, in the early Bronze Age of the third thousand years B.C. Yet it was only after long occupation of the lower plain, with its venerable fortress at Tiryns and settlements even more ancient around the majestic Larisa hill at Argos, that the military and commercial advantages of Mycenæ were appreciated, as a warden of the marches separating Argive lowlands from Corinthian, as a rallying-point in case of attack either from the hill-folk or from oversea, and as a stronghold from which to levy tribute on neighbouring settlements, and blackmail on convoys of merchandise travelling through the passes.

Three main stages may be distinguished in the long career of Mycenæ. In the first, the citadel was still small, though heavily fortified, and the royal tombs of its owners were "shaft graves" sunk in the rocks along the upper part of its main approach. How these were rediscovered by the persistence and enthusiasm of Heinrich Schliemann, nearly fifty years ago, is one of the romances of modern archæology, and opens a new chapter in the story of prehistoric times. Their amazing contents, gold vessels, gold rings and necklaces, embossed and intricately decorated gold fittings and platings for furniture and clothing of which the perishable parts are dust or splinters, revealed not only an elaborate craftsmanship and a wealth of complicated design, but



After a restoration by Ch. Chipiez.

GOLDEN MYCENÆ AMASSED WEALTH BEHIND HER WALLS CENTURIES BEFORE AGAMEMNON SAILED FOR TROY

Mycenæ—"Golden Mycenæ"—is indissolubly linked in our minds with the Siege of Troy, Agamemnon, and the whole tragic legend of the Atreidæ. As often in other cases, it has been the songs of poets that have kept fresh the memory of a flourishing city else forgotten. But to see again its growth and greatness we must go far beyond the Achæans of Homer, who were, like the Normans of a later date, little more than the inheritors of a civilisation not their own, a small but conquering band of dynasty-founders. We must go back to a small, dark, Hættic race, who perhaps from Crete, who in the second millennium B.C. built the citadel by degrees much as this restoration shows it, with postern gate on the left, lion gate on the right, and the roofs of the palace rising above the walls in the centre. The lower town, west of the citadel, is indicated on the right.



Photo by the Autotype Co.

WHEN IT GAVE EGRESS TO ARMED HOSTS, AND TO-DAY: THE LION GATE FROM WITHOUT

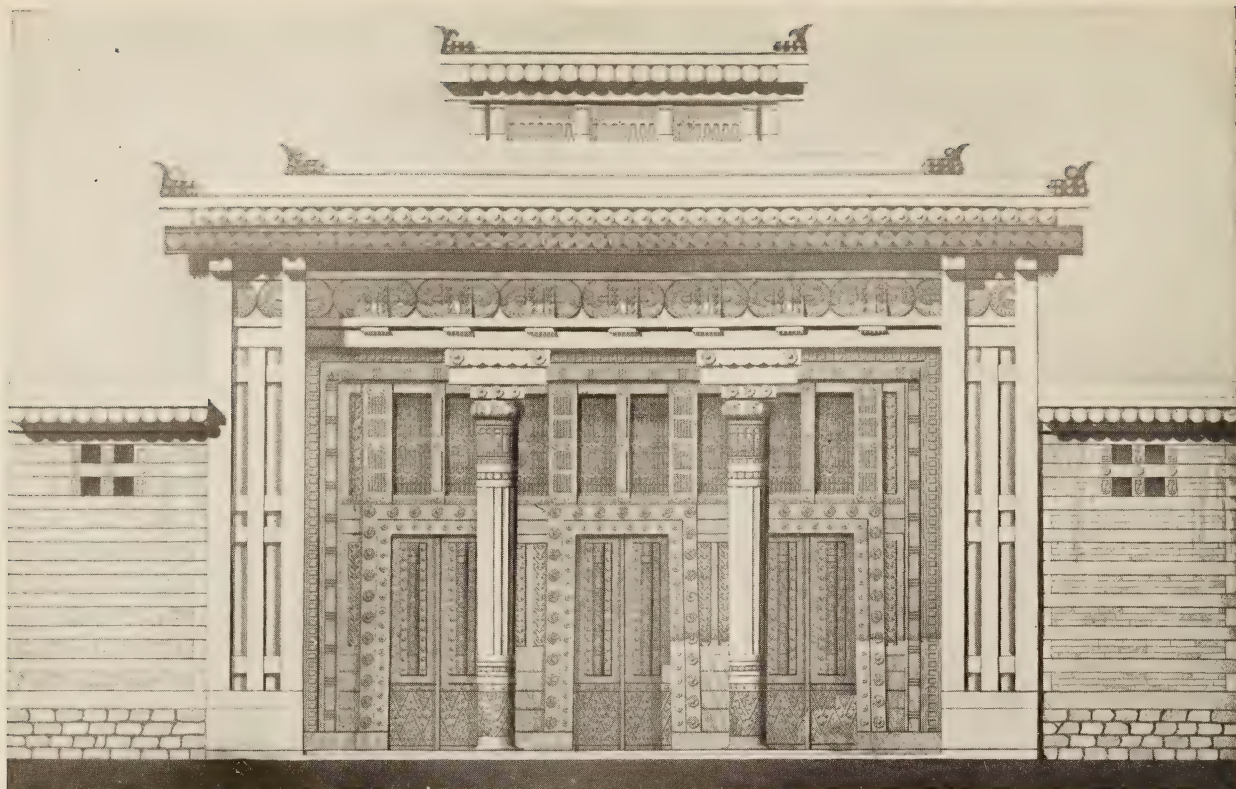
About the beginning of the "second epoch" at Mycenæ—the period that has left the beehive tombs—the walls of the citadel were strengthened, and on the west side extended so as to include the cemetery of the earlier kings; and the magnificent gateway which was built in this section was adorned above the lintel with a slab representing two heraldic lions flanking a "bætyl" or sacred pillar. The purpose of this triangular space, empty save for the slab, was probably to protect the lintel from direct pressure as in the beehive tombs. The sacred pillar is characteristic of early Mycenæan worship.



Photos by the Autotype Co. and by permission of the British School of Archaeology at Athens.

VIEW OF MYCENÆ FROM THE SOUTH, AND DOOR OF THE "LION TOMB" FROM WITHIN

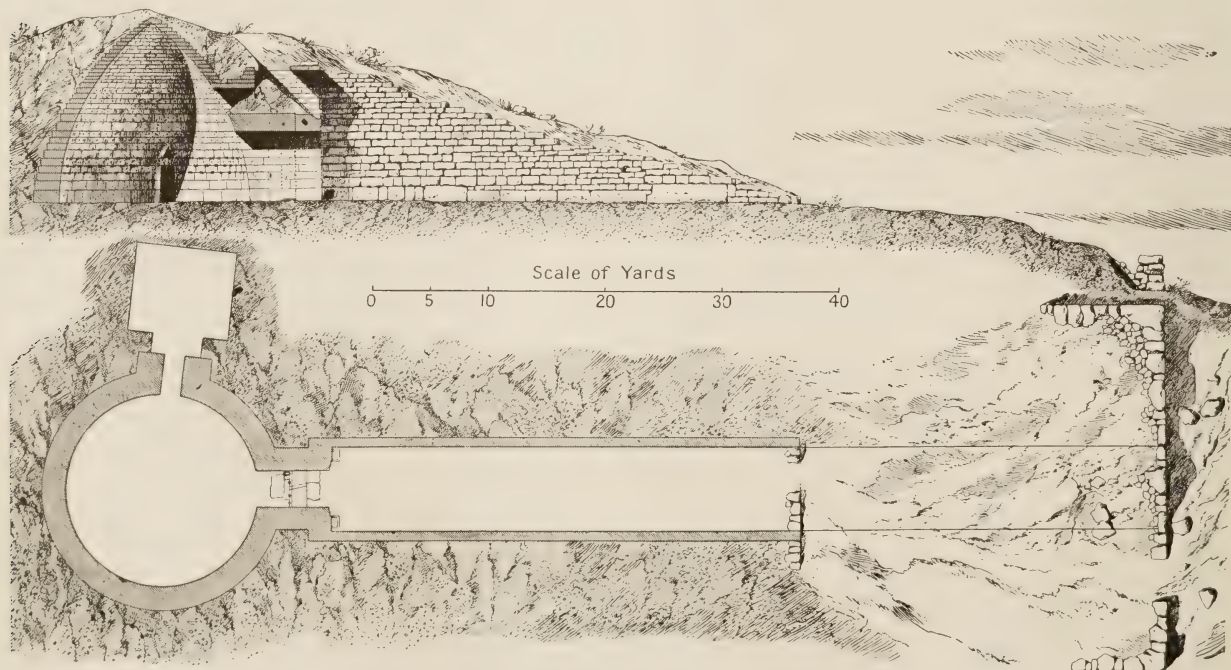
Above: A barren knoll, in the embrace of the twin ravines of the Kokoretsa and the Chavos bachi, with fans of earth from Schliemann's excavations spreading down its flanks—such is Mycenæ to-day. Once she exacted tribute far and wide to swell the hoarded gold of her kings. Below: Door of the "Lion Tomb," showing the stonework of the period, probably the late fifteenth century B.C. Note the vastness of the lintel. It is the organised labour involved that suggests that these were royal tombs.



After a reconstruction by Ch. Chipiez.

FAÇADE AND PORTAL OF THE PALACE WHEN MYCENÆ WAS A POWER

The palace that crowned the Mycænean citadel bears, as far as can be judged from the existing foundations, strong resemblances to those at Troy and Cnossus, although not on the same scale of magnificence as the latter. Certain descriptions in Homer seem applicable to this class of building, but otherwise it is quite unlike the domestic architecture of classical Greece. Discoveries among its ruins, as well as analogies drawn from the similar decorations of some of the tombs, have enabled this reconstruction of its appearance during the second Mycænean epoch to be made.



After Thiersch & Dörpfeld.

SECTION OF THE "TREASURY OF ATREUS," TOMB OF A NAMELESS KING

Outside the walls of the Acropolis have been found several strange underground chambers, of which the largest is given above in plan and section. A beehive-shaped vault, built of dressed stone, is embedded beneath the flank of a hill, and an entrance left in the shape of a cutting like the mouth of a sap. The Greek traveller Pausanias first used the term "Treasury of Atreus" in this connexion, but modern archæology proves it and its fellows to be tombs long since despoiled.

a whole style of art, with traditions and ideals of its own, not merely pre-Hellenic—for this period of “Mycenæan” civilisation runs from about 1800 B.C. to 1500 B.C.—but utterly un-Hellenic, and unrelated (at the time of its discovery) to any comparable finds.

Only by slow degrees, until the patience and ingenuity of Sir Arthur Evans more than repeated in Crete the achievements of the discoverer of Mycenæ, did the true bearing of the “shaft graves” and their contents become clear, as the masterpieces of a colonial offshoot of the Minoan culture, planted on a mainland shore of its Ægean home, which, small as the Argive plain and its surroundings seem to us, must have loomed large as New England or Virginia before those first daring explorers of it.

Then, through some crisis in the history of Mycenæ, of which we still know little, the “shaftgrave” princes passed away; their palace gave place to the dwelling of a new dynasty; their burial ground, almost forgotten, was enclosed within a larger and more effective fortress-wall, with its imposing “Lion Gate” and flanking tower masking a new and more defensible approach.

Only rather later did pious, or superstitious, hands erect a stone ring-fence round all that could be identified of the old cemetery, and lay to rest within it all that could be collected of the old royal gravestones; where Schliemann was to find them, and the graves themselves below. For these later lords of Mycenæ had other habits and observances. Theirs are the great “beehive tombs” scattered among the gardens of the Lower Town, more splendid architecturally than any “shaft grave,” and probably as richly furnished; but, alas! more conspicuous, and all looted (it seems from their present state) before Greek history began. Even their sculptured façades have been shattered by their despoilers, and only the faultless workmanship of the largest of them—the “Treasury of Atreus,” as Greek antiquaries named it, after the father of Homer’s “Lord of Men,” Agamemnon—has resisted time and turmoil until to-day; a cupola of great masonry, nearly fifty feet in diameter and in height, with a door lintel weighing over forty tons.

Of the palace belonging to the occupants of these “beehive tombs,” considerable ruins crown the citadel, approached by a broad staircase and entrance court, on to which open the portico

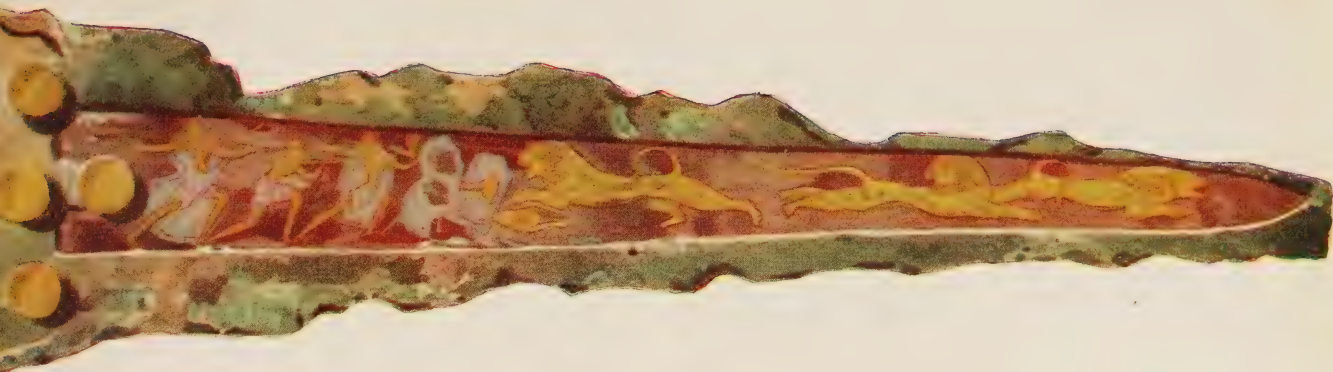
and vestibule of the main hall, with painted stucco floor and walls in a style reminiscent of the palace decorations of Crete, and (still more closely) of the neighbouring palace at Tiryns, near the sea-front of the plain, even more magnificent in plan, and fortunately much better preserved.

Life in these Mycenæan palaces in the fifteenth and fourteenth centuries B.C. was an odd mixture of primitive simplicity and almost modern luxury. Buildings, furniture, clothing, and ornaments were lavishly decorated in flowing forms which had once copied natural objects but had run riot in an "art nouveau" of spirals and flourishes, experiments in form for form's sake, more ingeniously planned than accurately executed, so exuberant was the artist's fancy, so rapid his facility in handiwork. It was an age of easy achievement and rather gaudy display; of athletic sport, dangerous and even cruel games, prize-fighting, bull-baiting, and a good share of real war, with single combat between champions armed with a broad, keen-edged rapier, a two-handled lance, and a vast, flexible body-shield of bull's hide, rimmed and emblazoned with gold or gilded bronze, and slung in front of the warrior from a shoulder-strap.

They loved their horses and dogs, their lumbering loose-built oxen, their fishing and fowling, their deer-stalking, perhaps most of all their occasional encounter with the lions which came down among the herds in Greece then, as they do nowadays in Rhodesia. Their women were worthy of these sportsmen; large-eyed, loose-haired, hoydenish creatures in flounced and embroidered skirts and excessively low-necked jackets, who danced and played and hunted, it seems, like the men, and joined them in feast and worship, waved adieu to the fighting force as it marched out, and wept over an ownerless shield after the war was over.

All this, and more, we see vividly depicted on palace fresco, tombstone, and painted vase, and on those engraved sealstones and signet-rings which everyone seems to have worn, and used to seal up provisions and other valuables temporarily, as we would nowadays turn a key in a lock.

Standing as it did as an outpost of Minoan civilisation towards the rugged and still barbarous interior of mainland Greece, Mycenæ seems to have retained much of the earlier vigour and "push" of its founders. How far it benefited also



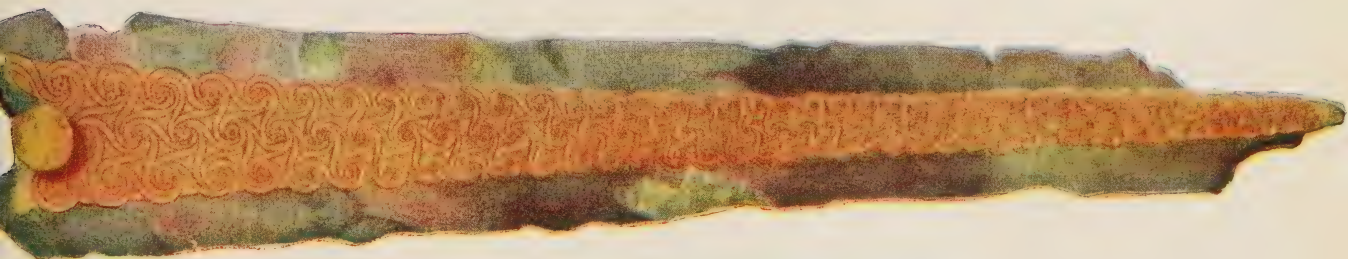
The inlay on this sword shows a lion hunt; two lions are fleeing, but a third has turned at bay and attacks the five hunters, of whom the foremost has been felled to the ground. The lions and men are of gold, the shields of electrum.



Here a lion has attacked a herd of five deer; four make good their escape, but the hindmost has not been quick enough. This is the same sword as that illustrated above, but the reverse side of it. A strip of gold indicates the ground.



Gold of every colour, from the pure metal to electrum, diversifies this vivid scene on a short dagger. Panthers are hunting wild ducks among the aquatic plants that border a stream; in the stream itself fishes may be seen swimming.



Reproduced by permission of Messrs. Chapman & Hall from "Art in Primitive Greece," by Perrot and Chipiez.

KINGLY SWORDS TO SERVE THE MYCENEAN DEAD

Most precious of all the rich finds that Schliemann unearthed in the shaft-graves at Mycenæ were sumptuously inlaid swords that had doubtless served faithfully in life the warrior-kings buried there. The material is bronze, and the inlay is gold or electrum—an alloy of silver and gold—either on the blade itself or on a thin platelet into the blade. The golden nails towards the hilt served to fix in place a chased, golden handle such as may be seen in position on the following colour plate.



One of the swords from the Mycenaean shaft-graves, though but plainly inlaid with conventional lilies of gold, is unique in that it has retained its handle. This is now hollow, but was once filled with a core of some hard material into which the tang of the sword was driven; rivets through the two holes visible in the centre of the picture secured it to the blade.



The famous "Vaphio" cups are not strictly Mycenaean, as they were discovered in a beehive tomb at Vaphio in the Spartan plain; they merit inclusion here, however, as they are eminently representative of the whole craftsmanship of the period known as "Mycenaean"—a civilisation that may indeed have had its centre at, but was not confined to, Mycenæ. They were unearthed in 1888.



Reproduced by permission of Messrs. Chapman & Hall from "*Art in Primitive Greece*," by Perrot and Chipiez.

HAZARDS OF THE CHASE ON CUPS THAT BRIMMED 3,500 YEARS AGO

Two more swords may here be seen, differing in no essentials from those shown on the preceding colour plate. But in the centre are the two cups whose discovery at Vaphio did more than anything else to give the metal-workers of Mycenaean times their deserved repute. They are of gold, about 4 ½ inches across at the brim and about 3 ½ inches high, and their ornamentation is deep repoussé-work. The left-hand cup shows a bull-hunt, in which two men have come to grief; the right-hand cup shows the captured bulls.

from the fresh blood of the mainlanders, or from the descendants of the Minyan invaders from Central Greece, it is more difficult to decide. What is certain is that, in common with other mainland settlements, Mycenæ found the predominance of the Cretan palace-regime irksome and at last intolerable; and it was apparently the mainland states which were responsible for the destruction of the Palace of Cnossus, somewhere about 1400 B.C., and for the replacement of Cretan by Mycenæan style and mode of life in the archipelago generally. Probably we may recognise in the Athenian legend of the liberation of that part of the mainland by the local hero, Theseus, from a cruel Cnossian overlordship, folk-memory of this momentous crisis; and a Cretan legend of the overstraining of the resources of the "sea-power of Minos" in a Sicilian expedition like that which ruined Athens in the fifth century B.C., perhaps gives a glimpse of the same catastrophe from another, though legendary, point of view.

Over the shattered sea-power of Crete, Mycenæan adventure spread rapidly, colonising in its turn within the Ægean, in the central islands, and in Rhodes and the coastal fringe as far north as Patmos; while along the frontage of the old Minyan region north of the isthmus, coast settlements have been traced in Thesaly, and even in Macedonia, near Salonica. In the wide seas beyond the long breakwater of Crete, as far as Cyprus eastward, and westward to Corfu, South Italy, and Eastern Sicily, it was the same; and there was active intercourse with Egypt during the reign of Amenhotep III. and onwards, and with the prosperous and cultured states of the Syrian and Cilician coasts.

How far this wider extent of Mycenæan civilisation centred politically, or even economically, on Mycenæ it is difficult to judge, so severely have the surface layers at Mycenæ itself suffered, both from subsequent occupants of the site and from its eventual desertion. But the tombs of this period of expansion (which have naturally preserved much that is obliterated above ground) show us a rich, populous, and widely connected city, practising the same arts and industries as of old, only with less solidity of construction, less accurate workmanship, less refinement and sobriety of taste. The shoddiness of many classes of objects, in fact, suggests large-scale production under stringent industrial conditions, where the workman was no longer his

own master, and produced his wares in workshops perfunctorily and to stock designs.

Wholesale and hurried repairs of the fortress wall, and the discovery of a foreign sword among the ruins of the palace, give us glimpses of political events—of warfare and siege—which we cannot verify at present; but there is ominously rapid improvement and considerable variety of type in weapons and armour of all kinds.

Thanks to the comparative accuracy of archæological dating among the products of Egyptian art, and the fairly copious intercourse between the Mediterranean coasts and Egypt during this period of Mycenæan expansion, the latter part of this period becomes almost historical, in the stricter sense of the word. A sudden change in the foreign policy of Egypt, and the terms of a defensive alliance concluded in 1279 B.C. between Rameses II. and the "Hittite" power in Asia Minor, are the prelude to a new age of violence and confusion which loomed up from the north-west—where "the islands were troubled in the midst of the sea"—and broke in disastrous "sea-raids" and "land-raids" on both parties to the treaty, in the years about 1200 B.C.

Greek folk-memory, which at this point becomes copious and vivid, records the establishment of new political regimes about 1270 B.C.; "Phrygian" and "Trojan" in Thrace and North-west Asia Minor, "Phrygian" and "Achæan" in peninsular Greece and the island-world; a great quarrel between these two groups of peoples two generations later, leading to a "Trojan war" which lasted from 1194 to 1184 B.C., and ruined both sides; and a comfortless "age of wanderings," stories of which are embodied in the "Tale of Odysseus."

In the Achæan Confederacy, "Golden Mycenæ" is once more the premier state, and its king, Agamemnon, its paramount chief. Like his brother, Menelaus, who is king in Sparta, he has married the heiress of the previous dynasty, Clytemnestra, and has trouble enough with her as well as with her rich inheritance.

Listen to Menelaus' invitation to the son of the lost Odysseus: "If you find him, I will soon sack a town or so, and make a place for him and all his folk." That is the language not of ancient nobility, but of a Northman or Frankish adventurer, and the common folk count for as little in war (if we may believe the



Photos by permission of the British School of Archaeology at Athens, and of the Society for the Promotion of Hellenic Studies.

SOUTHERN STAIRCASE OF MYCENÆ'S PALACE AND A GRAVE AT ASINE

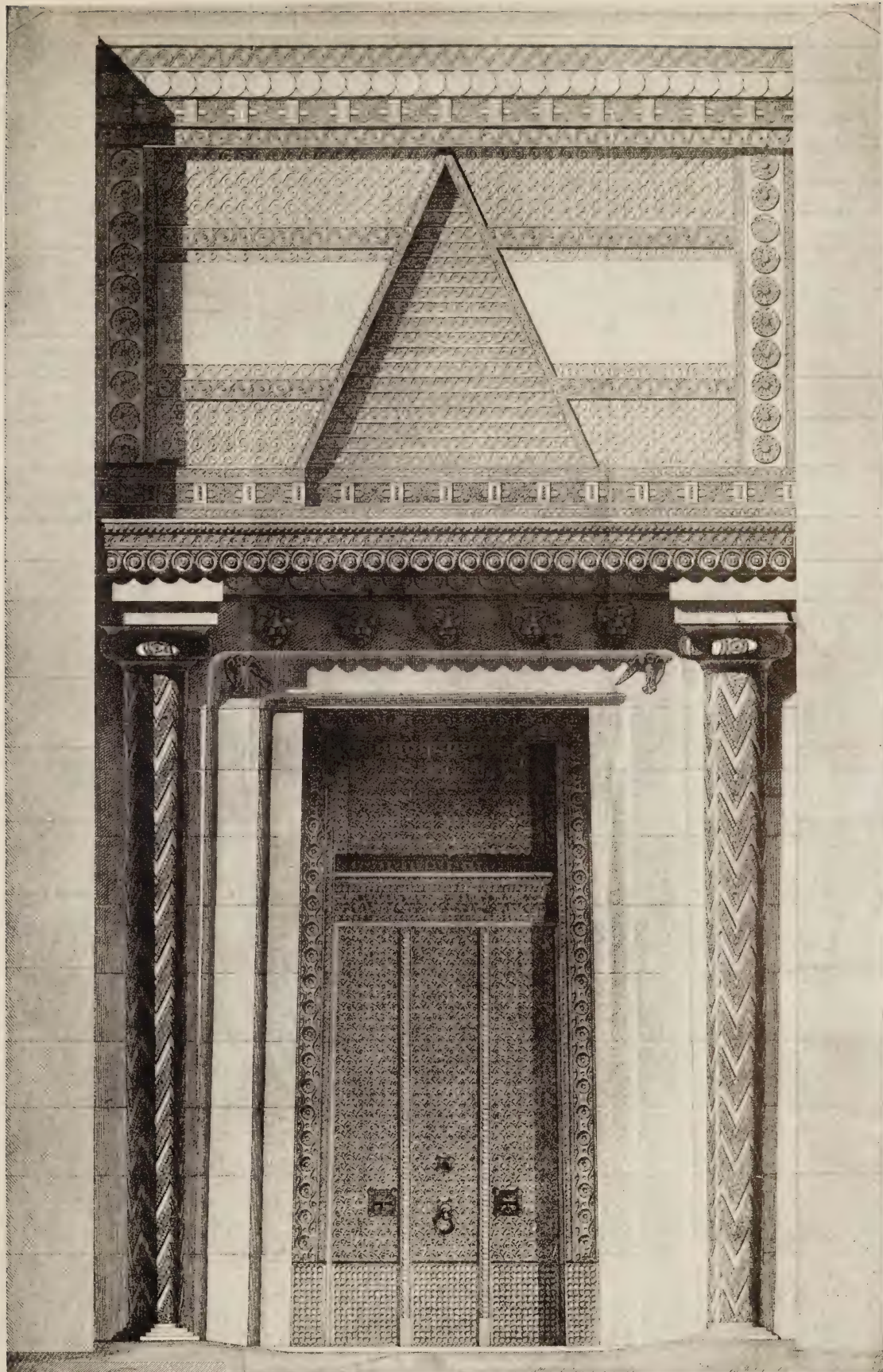
Above: Where the ground was steepest beneath the southern wall of the palace at Mycenæ, a noble flight of steps, 7 feet 10 inches broad, ascended probably to the courtyard above; but its exact point of entry is difficult to determine owing to a landslide that has left only twenty steps. Below: An opened tomb at Asine, south-east of Nauplia, a reproduction on a smaller scale of the empty graves at Mycenæ. It is strewn with pottery and bones, and in the background is the entrance.



Photos by Underwood Press Service.

POSTERN GATE AND BURIAL CIRCLE WITHIN THE LION GATE AT MYCENÆ

Above: So-called "postern" gate in the north wall of the citadel. Though strongly protected by a re-entrant in the wall, it was obviously not of such importance as the Lion Gate. Below: The circle containing the shaft graves wherein Schliemann made such a rich find. The slabs surrounding it were probably the original "stelæ" (gravestones), rearranged as a fence when, owing to enlargements of the city, it became necessary strictly to define the sacred area where the old kings had been buried.



After a restoration by Ch. Chipiez.

DOORWAY OF THE "TREASURY OF ATREUS" AS IT WAS

This is a reconstruction of the doorway of the "Treasury of Atreus," the only tomb of its kind at Mycenæ whose cupola is still intact; it should be compared with the photograph in the following page, which gives its present appearance from the same point of view. Notice the sumptuous decoration which is lavished on it, and for which there is ample evidence—blue enamel, copper rosettes, painting on stucco, and so forth, all as different as it possibly could be from the classical art that we know as Greek.



Photo by the Autotype Co.

THE DOORWAY AS CLEARED FROM THE RUBBISH OF CENTURIES

The unusual construction of the doorway of the "beehive" tombs is better shown in this photograph of the outside of the "Treasury of Atræus." It will be observed that above the lintel of the door a triangular space is left, now empty, but shown closed with a purely ornamental slab in the reconstruction on the preceding page. Its purpose was of course, to relieve the long lintel of the weight of the superimposed masonry, which might otherwise have cracked it.

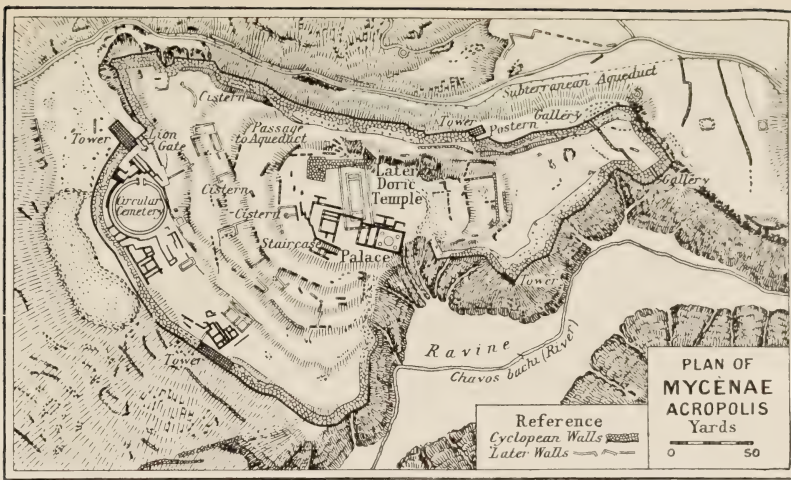
Homeric poems relating to this epoch) as they evidently did in peace.

To such adventurers we can hardly attribute the "all-glorious frontage" of Menelaus' palace in Sparta, nor the "divine workmanship" of furniture or armour in these recitals; rather, they are last glimpses of ravaged splendour, treasured by court minstrels inheriting stock passages of descriptive verse, as their masters inherited the splendid palaces with all their other loot.

One last change of fortune, for which Greek tradition is now our only voucher (though excavation at Sparta and on Argive sites begins to conform it in outline), transfers all that was left of Mycenæ to its eventual occupants, the invading Dorians out of northern Greece. In Argolis their political headquarters are not at Mycenæ at all, but at Argos, a larger and more dominant position on the far side of the plain and nearer the coast. Mycenæ, though it remained in occupation, and had a Greek temple on the very site of the old palace, became a village, a township at most. Its political independence ended in a disastrous quarrel with Argos, before the middle of the fifth century B.C.; and when Thucydides wrote his retrospect of early Greece at the close of that century, he could illustrate the discrepancy between legend and actual remains by no more convincing example than this: "that Mycenæ was small, or if any township of that age now seems unimportant, would be insufficient evidence for doubting so large an enterprise as the poets have recounted, and reason confirms."

"Sic transit gloria mundi."

With the foregoing account of Mycenæ should be compared the description of the Palace of Cnossus in pages 55 to 62 of this work; for the civilisation of Mycenæ was mainly a colonial offshoot of that of Cnossus, though the decorative art, in particular, developed in some respects along an independent line of its own.



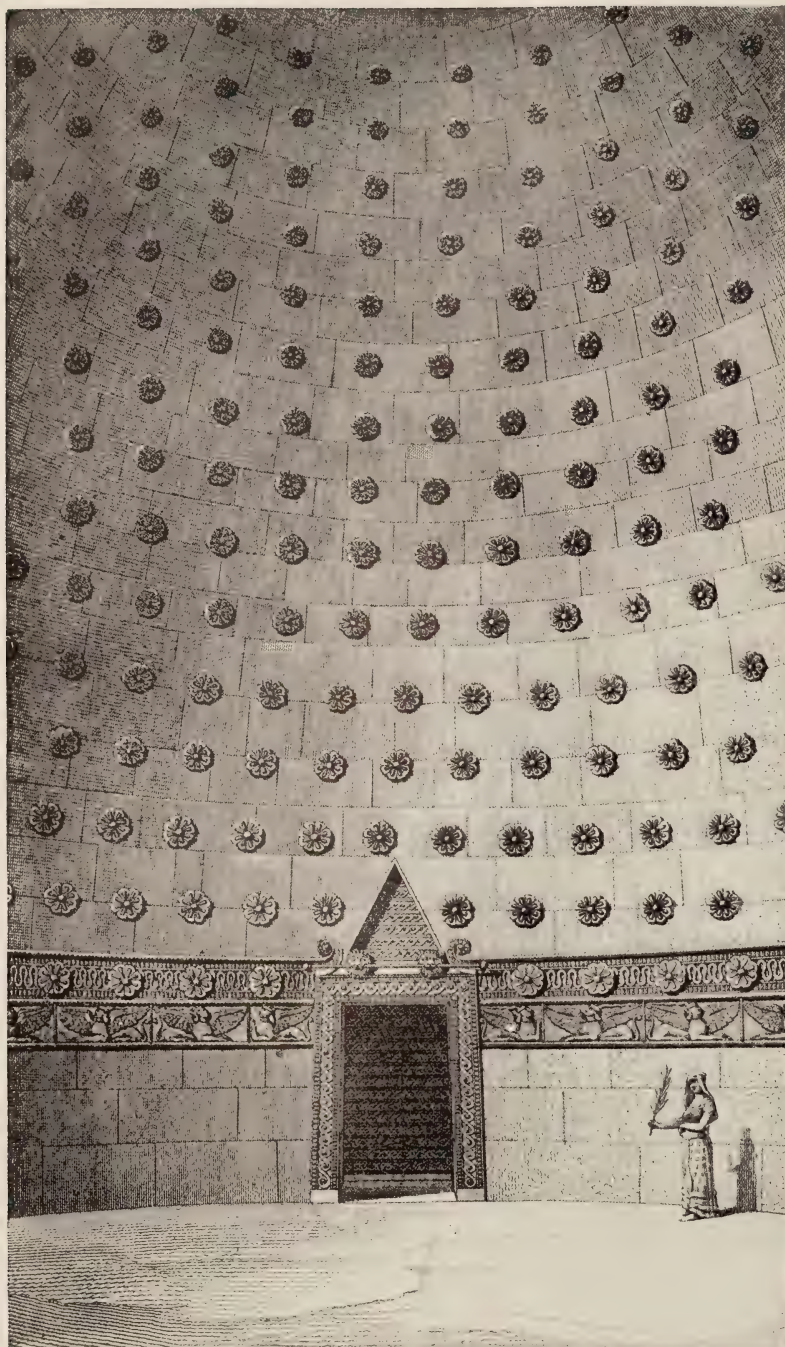
(After Steffen & Tsoundas)



From a photograph of a cast in the Berlin Museum.

LION GUARDIANS OF MYCENÆ'S CITY GATE

Nothing takes us farther from the atmosphere of classical Greece than this graven monolithic slab above the principal gateway of Mycenæ; not so much by the quality of its workmanship as by the ideas that lie behind it. It represents two lions with their forepaws on an altar-like base bearing a pillar, and it is not the lions but the pillar which is the important object; for though votive statues of the mother-goddess are found, the Mycenæans still worshipped the god-head under the external form of "bætyls" or sacred stones. The lions are merely the heraldic guardians of the pillar.



After a reconstruction by Ch. Chipiez.

"TREASURY OF ATREUS," FINISHED INTERIOR

The tomb itself is not a true vault, but is formed of narrowing rings of masonry, the final course being a single stone placed lintel-wise on the top. The interior was decorated, as this reconstruction shows, with bronze nails, for which the holes are still visible. The door opens into the second chamber.



Photo by Underwood Press Service.

ENTRANCE TO ONE OF THE SEVEN DISCOVERED BEEHIVE TOMBS, THE "TOMB OF CLYTEMNESTRA"

Since one of the domed or "beehive" tombs was pointed out to Pausanias, the Greek Baedeker, as the "Treasury of Atreus," it has become the fashion to call the more important of those recently discovered by the names of the ill-fated members of the Atreidai family; thus there is the "Tomb of Clytemnestra," and the "Tomb of Ægisthus." It need hardly be said that this implies no archaeological justification. The Tomb of Clytemnestra here illustrated is but little smaller than the Treasury of Atreus, but it differs in that it has no subsidiary chamber, and the masonry is rougher and smaller; sixteen courses, for instance, instead of nine, rise from ground to lintel. On the left the base of one of the ornamental pillars which flanked the doorway is visible, while the holes in the masonry above held

the clamps that retained these pillars in position.

TEMPLES OF THE GODS. XIV
THE PARTHENON: CROWN OF ATHENS
BY F. H. MARSHALL

THE PARTHENON: CROWN OF ATHENS

BY F. H. MARSHALL

Author of "Discovery in Greek Lands"

WHENEVER Greek architecture is mentioned it is probable that the first individual achievement of the ancient builders to be visualised in the mind's eye, even by those unskilled in things Greek, is the Parthenon. In its broken and ruined condition this majestic building still preserves a dignity that seems unimpaired; its very fragments still impress the beholder with a sense of beauty and proportion hardly less pleasing to the mind than the perfected beauty of its original state must have been. To conceive Athens without the Parthenon or the Parthenon without the advantage of its Acropolis site is hardly possible; but in Professor Myres' brilliant study of Athens (see page 607-626) it was found impracticable to deal adequately with the Parthenon without unduly extending that chapter; hence the special study which here follows. The present chapter should be read in conjunction with the earlier one on Athens itself.—EDITOR.

THE Parthenon may be said to epitomise all the merits which distinguish Greek art at its best period. It is at once strong, simple, graceful, and harmonious. It was nearly finished just before the disastrous Peloponnesian war dealt a fatal blow to Athenian supremacy. It embodies the peculiar qualities associated with the virgin goddess Athene, the goddess of wisdom and the arts, in whose honour the temple was erected.

The supremacy which is accorded to the Parthenon in the history of Greek architecture is not due to its size; though a large temple for its time, it sinks into insignificance when compared with such a building as S. Peter's at Rome. The English reader will be better able to grasp its dimensions by a comparison with the famous London church of S. Martin's-in-the-Fields. The

Parthenon measures 228 by 101 feet; S. Martin's, 160 by 80 feet. The palm accorded to the Parthenon is due to the sound instinct which prefers perfection of symmetry and perfection of finish to the merely colossal. It is fitting that this great work of art should be associated with the names of Perikles, the greatest Greek statesman, and Pheidias, the greatest of Greek sculptors.

The site and the building are worthy of one another. Placed upon the great rock of the Acropolis, which rises more than 500 feet above the sea, the building dominated the city which lay below, and could be seen from far and wide. It commanded in the clear atmosphere of Attica a magnificent prospect, whether towards the sea and Salamis, or inland towards the mountain masses of Parnes, Pentelikon, and Hymettos. The site had been previously destined for two temples, neither of which was ever finished. The second was probably destroyed by the Persians in 280 B.C., and its foundations were partly used for the Periklean Parthenon, though enlargement and elaborate additions were necessary.

The history of this last building may be briefly traced. It was begun in 447 B.C., and by 438 it was ready for the reception of the great statue of Athene Parthenos, but the finishing touches do not appear to have been placed to the building when the Peloponnesian war broke out in 431. The temple seems to have remained practically intact until its conversion into a church in Byzantine times; we have the definite evidence of the traveller Pausanias, in the second century after Christ, that it was then standing unimpaired. The conversion into a church apparently took place in the fifth century; and the alterations necessary for this purpose are instructive as showing the essential difference between the Greek temple and a Christian church. The central object in the ancient temple was the cult-statue of the god or goddess, and a fixed liturgy played no part in the worship. A long and uninterrupted space was not required, and the converters of the Parthenon found it necessary to remove the partition wall which divided the building into two separate portions in Greek and Roman times, and further to build an apse at the east end. In 1458 the Turks captured Athens, and again the temple suffered conversion—this time into a mosque, but little structural damage apparently resulted. The building remained practically



SOUL STIRRING EVEN IN THEIR RUINED CONDITION ARE THE COLUMNS AND WESTERN PEDIMENT OF THE PARTHENON

Crowning the Acropolis in serene majesty, the Parthenon excelled all the other buildings of ancient Athens in the brilliancy of its polychrome and plastic decoration. It occupies the site of a former temple of Athene, built about the sixth century B.C., but its floor stands on a substructure 40 feet higher than the ground level on the south side. The building was started after the battle of Marathon by Perikles, and the architects were Iktinos and Kallikrates, while the plastic embellishment was entrusted to Phidias. According to stone inscriptions of the fifth century B.C., the building was begun in 447 B.C., and opened for the rites of Athene Parthenos in its completed state in 438 B.C. It is almost incredible that this exquisite temple should have taken hardly ten years to build and ornament.



After a drawing by Niemann.

SECTION THROUGH A PEDIMENT OF THE PARTHENON

The great pediment, or triangular gable, contained groups of symbolic statuary; it was supported by the stone beams of the architrave, along the top of which were placed, at regular intervals, the triglyphs, or triple-fluted slabs. In the interspaces, called metopes, were sculptured episodes of the fabled war of the Centaurs and Lapiths. The frieze ran round the four walls of the cella, or temple proper, within the colonnade.



RELIEFS THAT MAY BE BASED ON THE PARTHENON SCULPTURES

A slab from a "puteal" or well-head, now in Madrid, is used as the basis for most recent reconstructions of the eastern pediment of the Parthenon, as it is thought that its inspiration may have been drawn thence; with the necessary reservation imposed by the rectangular shape of the puteal compared with the triangular pediment. The scene is immediately after the delivery of Athene from the head of Zeus by a blow from the axe of Hephaistos. From left to right: Hephaistos, Zeus, Nike (Victory), Athene, the three Fates. What so commends the puteal as a useful clue is the fact that Athene is shown full-size and in the centre of the field—a much more likely arrangement than that adopted in many previous reconstructions which portray her of diminutive stature and still poised on the head of Zeus, who is the central figure.



DORIC COLUMNS, ARCHITRAVE AND REMNANT OF THE PEDIMENT: VIEW FROM THE INTERIOR LOOKING EAST

This photograph shows the eastern portico or pronaos. The specific purpose of this portion of the Parthenon is still a matter for conjecture, but it undoubtedly had some sacrificial or votive significance, just as the opisthodomos at the opposite end of the temple served as a storehouse for materials used in the temple in the worship of Athene. The columns at this, the less complete, end are remarkably well preserved, particularly the fifth from the left in the picture. The average height of these columns is 34 feet, and they rise tapering from bottom to top, with a slight bulge or "entasis" in the middle. The twenty flutes on each column diminish in width, but not in depth, towards the capital, and produce thereby a fine effect of shadow.



REMNANTS OF THE GLORIOUS TEMPLE OF ATHENE PARTHENOS FROM THE NORTH-EAST

The stylobate, or platform, is on a level with the roof of the Propylæa, and on it stands the outer framework of forty-six Doric columns, each 34 feet high. These columns taper gradually to the top, and are so skilfully sculptured that while their strength is unquestionable, the effect to the eye is graceful in the extreme. Over each column is a triglyph, or triple-grooved tablet, and between each triglyph the interspaces, or metopes were occupied by reliefs representing (such of them as are well enough preserved to be recognised) contests of Lapiths and Centaurs.

undamaged till the fatal year 1687, when the Venetians under Morosini were besieging the Turks in the Acropolis, and a shell landed on the Turkish powder-magazine placed in the Parthenon and blew out the middle of the building. Morosini caused further damage through an attempt to remove the horses of Athene's chariot from the western pediment; in the process they fell to the ground and were irretrievably damaged. The next important incident is the removal by Lord Elgin, in 1801 and the following years, of most of the sculptures left in the pediments, together with a large portion of the frieze, several metopes, and other portions of the building. After romantic vicissitudes and acrimonious debates in Parliament these (with some other sculptures) were ultimately purchased for the British Nation in 1816 for the sum of £35,000, and have since been one of the chief glories of the British Museum. Though differences of opinion still exist as to the propriety of the present home of these masterpieces, it may be said with confidence that the world's judgment has not endorsed Byron's bitter attack on Lord Elgin in the well-known lines in *Childe Harold*:

But who, of all the plunderers of yon fane
On high, where Pallas linger'd, loth to flee
The latest relic of her ancient reign,
The last, the worst, dull spoiler, who was he?

We pass to a description of the building itself and its sculptures. The Greek temple has a long history, and in that history the Parthenon holds, as it were, a central position. The earlier Greek Doric temples are characterised by the heaviness and squatness of the columns, which have a very marked diminution in thickness from the bottom upwards. The architraves are correspondingly heavy, and this stage is well illustrated by the remains of the sixth century temples of Poseidon at Corinth and Paestum in South Italy, or the ruinous remains at Selinunte, illustrated opposite page 307 of this work. Later, the Doric order in Roman hands is marked by the comparative slightness of the columns. In the Parthenon, however, the tapering of the columns, a little over 34 feet high, though marked, is free from exaggeration. If we look at a plan of the temple, we see that

it has an outer colonnade of eight columns at the short ends and seventeen on the long sides; this colonnade rests on a platform (the stylobate) rising in three steps. On the columns rests the architrave, and above this are the square sculptured panels called metopes, separated from each other by the grooved triglyphs. Over these at the short ends are the triangular gables or pediments. The roof was originally covered with marble tiles resting on wooden supports. Inside the outer colonnade runs a corridor which separates it from the temple proper. The latter consisted of four parts; at the east end was an antechamber called the "Pronaos," which led into the main chamber of the temple, the "Hekatompedos Naos," a shrine 100 feet long, like the old "Hekatompedon" which the Parthenon replaced (see illustration facing page 610), containing the great statue of Athene by Pheidias; this chamber was completely separated by a wall from the rooms on the western side—the "Parthenon," or Maiden's Chamber, which gave its name to the whole temple, and another ante-chamber corresponding to the pronaos, and probably known as the "Opisthodomos." Both ante-chambers have a portico of six Doric columns, and behind these was originally an iron grating which converted them into closed rooms. Over the columns ran the sculptured frieze, which was carried right round the walls of the temple proper, or cella. This frieze, which is one of the noblest monuments of Greek art, will be described later.

To return to the arrangements of the Hekatompedos and Parthenon. The former was divided into a nave and surrounding aisles by means of two long parallel rows and a short cross-row of Doric columns; a second series of Doric columns superimposed on the first supported the ceiling. A balustrade railed off a space in front of the cult statue, the position of which is still marked by the dark stone flooring. A description of the statue will be given later. On the western side the Parthenon chamber had its ceiling supported by four tall columns probably of the Ionic order. It served mainly as a repository for precious objects dedicated to the goddess, and these were recorded with meticulous accuracy in lists inscribed on stone, several of which, witnessing to the temple's wealth, have come down to us.

The lighting of the temple was probably (apart from artificial light) supplied through the great doorways at the east and



Based on a model in the Metropolitan Museum of Art, New York City, and specially coloured for "Wonders of the Past."

THE PARTHENON, SHINING DIADEM OF ATHENS—

This magnificent pile, raised at the zenith of the finest period of Greek architecture, the essence of whose beauty would appear to lie in its very simplicity, is nevertheless built with an amazing skill. Details of its construction which have been minutely scrutinised reveal the fact that its architects must have been scientists and mathematicians as well as artists. This is abundantly evident in such subtle points as these: that apparently horizontal planes are imperceptibly



—AND TREASURE-HOUSE OF PEERLESS STATUARY

erved; that perpendicular lines incline slightly towards the centre of the temple; and that the seemingly flat floor is rather higher towards the centre than at the
use—everything was studied for the finest effects. But the great glory of the Parthenon was the decorative sculpture by Pheidias and his disciples; the Athena
statue, the Frieze, the Metopes—all were masterpieces impossible to excel.

west ends. In estimating the effect we must bear in mind how much greater is the intensity of light in Greece than in England. This intensity explains another feature of the Parthenon—the free employment of bright colours in combination with the dazzling white of the marble. The brilliant success of the effect thus produced can be judged to-day from several of the buildings of modern Athens which are built in this style. It must be remembered that the Pentelic marble of which the Parthenon is built was originally a pure white, though in the course of centuries it has weathered to a rich gold owing to the admixture of iron in the substance of the marble.

The sculptures of the Parthenon were produced at a time when Greek art was at its acme, and it is the singular good fortune of Britain that she has these (as so many other masterpieces of Greek sculpture) ready at hand for those who cared to study them. There are three principal groups of sculptures from the Parthenon—those from the two gables, the metopes, and, above all, the great frieze. In studying these we must bear in mind that they were intended in their subjects to symbolise the highest aspirations of the Greek and especially the Athenian mind. Every aid to their proper understanding will be found in the Elgin Room of the British Museum.

The great pedimental groups have suffered most from the vicissitudes of time, but we have assistance in reconstructing them, notably in the descriptions of the traveller Pausanias in the second century after Christ, and in drawings made by a French artist (usually supposed to be Jacques Carrey) in 1674. The east pediment, which surmounted the principal entrance to the temple, appropriately represented the birth of the virgin goddess Athene from the brain of Zeus; these figures are entirely lost, but a probable reconstruction can be made with the aid of a relief-sculpture on an ancient marble well-head at Madrid and representations of the myth on vases. From this central group the figures on either side were ranged in diminishing height to suit the triangular frame. Behind Zeus probably stood Hephaistos, who had delivered the goddess from the head of Zeus by a blow with his axe. The interpretation of the extant figures, with the exception of the Sun-god rising in his four-horse chariot on the left and the Moon-goddess sinking with her team on the

right, is uncertain. But whether we regard them as deities or as local personifications, there can be no disagreement as to the merits of the sculptures. The group of three draped women on the right, commonly known as the three Fates, and the splendid nude figure usually and with great probability called Theseus are masterpieces of the sculptor's art.

The western pediment depicted the struggle between Athene and Poseidon, Lord of the Sea, for the possession of Attica. Here Carrey's drawing is of great importance, for it shows the original composition admirably and enables us to have a proper understanding of the mere fragments which remain. Athene and Poseidon start back from one another, probably after the creation of their special attributes, the olive-tree and the salt spring. Each had a chariot in attendance, but the fate of Athene's horses has already been described. The figures on either hand have been variously interpreted, but they are probably Attic heroes and heroines interested in the struggle. There is general agreement that the recumbent figures in the corners represent river-gods. That on the left, usually called the Ilissos, is famous for its soft modelling suggestive of a river's flowing water.

Of the ninety-two metopes the British Museum possesses fifteen, all from the south side of the temple; forty-one still remain in position, but all are badly weathered. The metopes in the British Museum represent the struggle between the Lapiths and the horse-monster Centaurs; such scenes of combat are frequent in Greek art, and in the case of the Parthenon it is hardly fanciful to read into them a symbol of the triumph of Greek civilisation over Persian barbarism. The metopes vary greatly in artistic merit; some are comparatively poor in composition and execution, others admirable. We must conceive of the background being picked out in colour to understand the full effect of these groups. Different scenes of combat are represented on other metopes but their bad preservation makes any more exact interpretation difficult.

There can be no doubt that the interest of the Parthenon sculptures culminates in the frieze, which, it is generally admitted, represents the great Panathenaic Procession held every four years in honour of Athene. This vast composition occupied 524 feet in length, and is 3 feet 4 inches in height. The British



WALL OF THE HEKATOMPEDOS AND EXTERIOR DORIC COLONNADE ON THE SOUTH SIDE

The wall on the left is that of the cella, or temple proper. Round this wall, on the outside, were friezes sculptured by Pheidias to represent the glory and power of Athens in the service of her goddess. These must indeed have been executed with rare ingenuity, for it is said that when the sun threw the shadows of the columns on the inner wall as here, it seemed to a person walking down the pillared aisle that the whole procession was in movement towards its glorious climax at the eastern end.



Based upon a model reconstruction in the Metropolitan Museum of Art, New York City.

MASTERPIECE OF PHEIDIAS: THE STATUE OF ATHENE IN HER CHOSEN SHRINE

The Hekatompedos, as seen in this reconstruction, was divided longitudinally into three aisles by two rows of Doric columns. In a commanding position against the back wall of this temple stood Athene. Her right hand held a representation of Nike (Victory), while her left rested on the shield on whose surface was depicted the battle of the Amazons with the Greeks. Athene's breastplate was the "ægis," a goat-skin plated with scales, having the Gorgon's head in the centre. The cost of the statue was fabulous, for the flesh parts were of ivory and the drappings of pure gold.



Photos by permission of the Trustees of the British Museum.

RIVAL DEITIES FOR THE WORSHIP OF ATTICA

A reconstruction by Schwerzek of the statues that once occupied the centre of the west pediment; they were a representation of the legendary struggle of Athene and Poseidon for the control of Athens—a contest won, of course, by Athene.



DEITIES OF ANCIENT GREECE VIVIDLY PORTRAYED IN MARBLE

On the eastern frontage of the frieze we have Poseidon (extreme left), now reconciled with Athene and a guest at the celebrations at her temple. Reclining on the stool next to him is Apollo, seated side by side with Artemis, the divine epitome of the beauty of maidens. The mutilated figure on her right is Aphrodite (Venus of the Romans), who has her boy Eros, or Cupid (not shown in the photograph), by her knee. All save Apollo are watching the procession, and he, from his attitude, seems to talk of it to Poseidon.



METOPE FROM THE PARTHENON

Of much less skilled workmanship than the frieze, the metopes were probably executed by disciples in the school of Pheidias. The subjects are contests of the mythical Lapiths and Centaurs, arising from a quarrel at a marriage feast.



Photos by permission of the Trustees of the British Museum.

COWS LED ALL UNWITTING TO THE SACRIFICE

In the Panathenaic festival sacrifices and offerings of various descriptions were laid before the goddess Athene. Amongst these sacrifices were cows and bulls, led by the owners, who wished to propitiate their guardian deity. In this fragment of frieze from the south wall can be seen the hindquarters of one cow, its leader being on its right side and holding his cloak with his left hand, and the head and forequarters of another animal whose leader walks on its left.

Museum is singularly fortunate in possessing some 247 feet of it.

The position round the wall of the cella was carefully chosen for its effective display; as seen in alternate light and shadow by one walking round the columns of the outer colonnade it must have appeared to be in actual movement. Now, as exhibited in the British Museum, it both gains and loses. It can be studied in minute detail because it is nearer to the eye; but it is arranged internally instead of externally, and the effect of the view from between columns is lost.

The moment in the procession depicted is the presentation of a new robe to Athene, and this takes place on the east side in the presence of the gods and goddesses seated in a semicircle. On the western side the procession is starting, and it proceeds in two long streams up the north and south sides towards the seated deities. These deities are arranged in two admirably-balanced groups. On the left are Zeus and Hera, on the right is Athene; most of the other deities can be identified with reasonable certainty. Between these two groups are five persons standing: a woman, presumably a priestess, receives two girls who appear to be carrying stools on their heads; to the right of them is a bearded priest who takes a large folded robe—no doubt Athene's—from a boy.

We may now turn to the different elements in the procession. At the west end, where most of the slabs are still in position, a number of knights are about to mount or have just mounted their horses. On the long side these riders are in full procession, and are portrayed with admirable life and variety as they ride in groups nearly abreast. Before the cavalry move four-horse chariots, preceded by a group of elderly men. In front of these again are lyre-players and flute-players and youths with trays and jars of wine. At the head of the procession are sacrificial victims—on the north side cows and sheep (perhaps offerings from the colonies), on the south side cows alone. Continuity is preserved by the introduction of marshals at the corners of the frieze. As the procession turns from the two long sides to the east front it is headed by maidens carrying bowls and jugs. The arrival of the procession is awaited by groups of elders who stand on either side of the deities. This short description enables us to realize how nearly every element in Athenian life was in-

troduced into this great composition, and was brought thereby into the closest touch with the protecting deities.

Though occasionally unequal in execution, the frieze as a whole is sculptured with great spirit, the fire introduced into the horses being sometimes wonderful. The composition shows a master mind and may be associated with the name of Pheidias. To allow for the effect of the lighting from below the upper part of the frieze is in rather higher relief than the lower (about 2 inches against $1\frac{1}{4}$). Accessories, such as bridles, were introduced separately in bronze and riveted to the marble.

The greatest of all the sculptures of the Parthenon, the cult-statue of Athene Parthenos, the position of which has been already indicated, has perished. We have, however, an elaborate description of this masterpiece of Pheidias by the traveller Pausanias, and several antique copies, none of which worthily represents the splendour of the original. The goddess stood in long tunic with the "ægis" on her breast. Her helmet was adorned with a sphinx in the centre and griffins on the sides. Her outstretched right arm held an image of victory, her left rested on a shield adorned with a representation of a battle between Greeks and Amazons. About this shield we have the story that Pheidias introduced portraits of Perikles and himself into it—Pheidias as a bald old man raising a stone, and Perikles poisoning a spear, with his arm raised so as partially to conceal his face. These figures can be identified on the "Strangford" shield in the British Museum. The materials of this colossal statue, which, according to Pliny, was about 40 feet high, were of gold and ivory—gold for the robes, ivory for the flesh—and the gold and ivory could be detached from the statue. The base was decorated with elaborate reliefs. We cannot doubt that the grandeur of the statue was worthy of the people's ideal conception of their patron goddess.

If we look for a real significance of the Parthenon, it is to be found, I think, in its expression of the Attic ideal. This is revealed rather in the sculptures adorning the temple than in the actual architecture. It is true that subtle refinements are introduced into the structure, such as the gentle curving of seemingly straight lines and the slight backward tilt of the columns, with the object of counteracting optical illusions. But these refinements



Photos by permission of the Trustees of the British Museum.

COLD MARBLE QUICKENED WITH THE BREATH OF LIFE

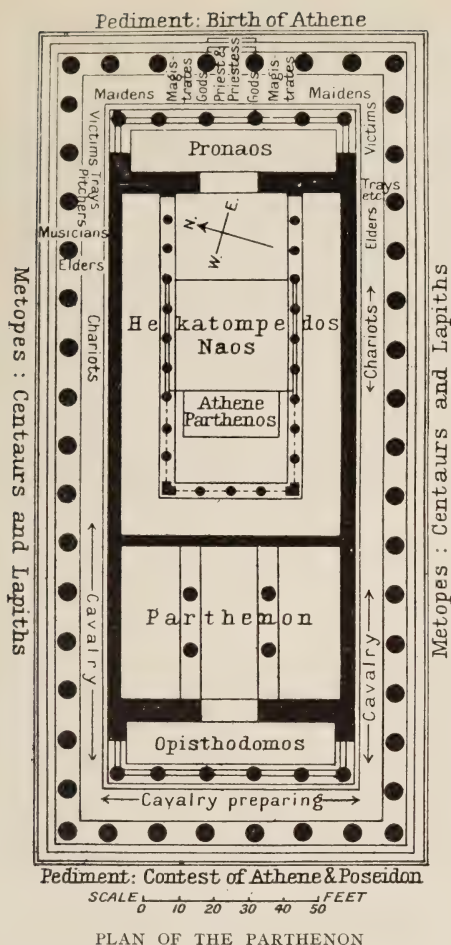
The bearded figure in the upper of these two slabs from the Parthenon frieze is a Marshal, who points the way to the youth with the horse. The reins and trappings are gone, for they were of bronze; only the rivet-holes in the marble remain. The restive horse in the lower example is in acute contrast with the meek cows in the preceding illustration; the veins of his limbs almost seem to pulsate.



Photos by permission of the Trustees of the British Museum.

LIFE'S UNTRAMMELLED GESTURES WROUGHT IN STONE

The realism of Pheidias' art, vivid but not crudely obtrusive, is well shown in these portions of the frieze. Particularly noteworthy is the vigorous treatment of the noble central figure of the Attic knight and the strong, sweeping curve of the horse's neck in the upper picture. Below are most vigorous animals bearing riders, whose eager attitudes are instinct with dashing energy, while the flying cloak of the rear horseman suggests triumphant speed.



The inner shrine or Kekatompedos [Naos] was 100 feet long and contained the great statue; the Parthenon proper housed the temple gear. The Pronaos (fore-temple) was an outer portico, while the Opisthodomos (house behind) was a porch at the opposite end used as a treasury.



By permission of the Trustees of the British Museum.

CRUDE REPLICA OF A PEERLESS STATUE

The glorious statue of the Virgin Goddess, that was to the Athenians an ideal symbol of all that their city meant, has vanished beyond recall; and the few extant copies are rude and amateurish efforts. Nevertheless this cast of the so-called "Varvakeion" statuette (the original is in Athens) enables us to realize the pose in which the goddess was portrayed.



GRAND CLIMAX OF THE PARTHENON FRIEZE : PRESENTATION OF HER ROBE TO ATHENE



After a reconstruction by Loviot from "Monuments Antiques."

SCULPTURE AND PAINTING OF THE EASTERN PORTICO

Acknowledged though the Parthenon was, in ancient times as to-day, to be without peer among Greek temples, its supreme merits seem to have been so taken for granted that little has come down to us of contemporary accounts. Thus the painting on the cella wall in this reconstruction of the eastern end is conjectural, although a conflict of Greeks and Persians would be a very likely subject; while the restoration of the central figures in the pediment is only one of many attempts.

had long been employed by the Greek architect. The happy mean struck between excess of heaviness and excess of lightness in the proportions might seem due to the natural evolution of the Greek temple. The peculiar meaning of the Parthenon is best grasped by contrasting its sculptures with those of the slightly earlier temple of Zeus at Olympia.

The temple of Zeus is the expression of pan-Hellenism, the Parthenon of Atticism. The subjects of the sculptures of the Zeus temple—the preparations for the chariot race between Pelops and Oinomaos, the combat between the Centaurs and the Lapiths, and the exploits of Herakles—concern the great precinct at Olympia “where all men meet.” The Parthenon sculptures also include the struggle between the Centaurs and the Lapiths; but greater stress is laid upon the essentially Athenian subjects—the birth of Athene, the contest between Athene and Poseidon, and above all upon the Panathenaic Procession. In the execution of the pedimental groups the free flow of the Parthenon sculptures is in striking contrast to the stiff balance of the Olympia groups, and herein it is hardly fanciful to detect the essential difference of the Attic spirit. At Olympia the cult-statue of Zeus was also the work of Pheidias, and it is significant that it was an Attic sculptor who gave a satisfying ideal interpretation both of the pan-Hellenic god and of the Athenian goddess. The visitor at Olympia would be dominated by a sense of the majesty of Zeus; on the Acropolis at Athens he would be under the spell of the goddess who typified the Attic spirit, which sought to free the human intellect from all that might hamper it in its natural development and to enable it to express its highest aspirations in sublime forms of imperishable beauty.

THE WONDER CITIES. XVII
OSTIA: PORT OF ANCIENT ROME
BY THOMAS ASHBY, D.LITT.

OSTIA: PORT OF ANCIENT ROME

By THOMAS ASHBY, D.LITT.

Director, British School at Rome

IN the words of Sir Rennell Rodd, "the marsh birds breed in her bay, and a mile to the shoreless westward the water has passed away." But, deserted alike by man and the sea, much of Ostia still endures to reveal the manners and the architecture of a Roman seaport town. The remains of Pompeii, where quite different architectural traditions prevailed, have been more spectacularly preserved, while at Rome itself only the greatest monuments have escaped destruction; here, vividly resurrected by Dr. Ashby, we have the bustle of everyday life as it was lived by a Roman business man. With regard to the theatre, little space is here devoted to its illustration, as it is dealt with in Prof. Gardner's chapter on "The Greek and Roman Theatre." We must thank Dr. Guido Calza, the distinguished director of the excavations at Ostia, for his courteous co-operation in the matter of the fine series of photographs that so effectively illustrate this chapter.—EDITOR.

THE importance of the fact that Rome was situated on the Tiber can hardly be overestimated. Half-way between the sea and the mountains, she commanded the only permanent crossing of the river as far as the mouth, and for a considerable distance upstream. And the river, the estuary of which was the only approach to a natural harbour on the west coast of Italy between the Gulf of Spezia and the Gulf of Gaeta, became of vital importance for her trade and for the supplies of provisions that she came to need in increasing quantities. Rome, indeed, brought her ships up the river as far as the city itself until what seems a surprisingly late date, considering the tortuousness of the Tiber's course, the shallowness and rapidity of its stream, and the consequent difficulties of navigation. Only a few years ago a destroyer was brought up the river to be there for a few weeks as a show for the Romans—many of whom had never

seen one—and could only just be floated down again before the summer came on.

Neither history nor the evidence of excavation allows us to place the foundation of Ostia on its present site before the fourth century B.C., though tradition makes Ostia the oldest of Roman colonies, founded, it is said, by King Ancus Martius in the seventh century B.C.

A recent writer, M. Jérôme Carcopino (*"Virgile et les Origines d'Ostie,"* Paris, 1919), has indeed attempted to show that on the site of Ostia there had been one of the most ancient federal sanctuaries of Latium, the seat of the cult of Volcanus—whom he identifies with the god of the Tiber, as well as with Jupiter, Mars and Apollo—and his consort, Maia or Mother Earth, under all her varied forms. But it is probably safer to suppose that its origin is connected with the salt marshes which have lain at the mouth of the river from prehistoric days till they were given up forty years ago. An ancient trade route led to them from the Sabine country, the main purpose of which is shown by the name of the Roman highway which took its place, the Via Salaria, or Salt Way.

Be that as it may, Ostia does not appear as a port until the Second Punic War, which began in 218 B.C., when it is frequently mentioned as a naval base and as the harbour of Rome. From that time onwards its importance very rapidly increased. We know enough now about its condition under the Republic to be able to say that it lay nearer the sea than was hitherto thought, and grew inland, not seaward, so that there has been far less variation in the shoreline during the Roman period than has been supposed.

The first settlement was, as the traces of its fortifications show, quite a small rectangular fort; but by the time of Sulla, some thirty years before the end of the Republic, it had expanded as far inland as it ever did, and the main lines of its plan were laid down from the first by the principal street, the Decumanus, which was the prolongation of the road from Rome right through the town.

The river in Roman times appears to have run more or less parallel to it, and therefore, in order to fill the space to the best advantage, most of the streets were naturally laid out at right



Photo by Dr. Ashby.

LIKE MODERN ROMANS, THE PEOPLE OF OSTIA LIVED IN FLATS

Stout brick and tough mortar that have stood well against the ravages of time were used to build these massive "insulae," or flats. The extraordinarily thick walls must have made the apartments most comfortable to live in—warm in winter and cool in summer. This view shows clearly the separate entrances to the series of flats one above the other that made up the building. Fragments of interior plaster still adhering may be seen on the walls on the extreme right. Notice the graceful pilasters on either of the main entrances, with the ornamental pediment above them.



Photo from Dr. Ashby.

TREACHEROUS TIBER FLOWING BY THE WALLS OF THE PORT OF ANCIENT ROME

Formerly a busy dockside city by the sea, Ostia has long been deserted not only by man but also by the river, which, carrying down heavy alluvial deposits, flooded frequently and changed its course. It has, near its mouth, eaten away land on one side and piled up new banks on the other: thus did Ostia lose its *raison d'être*. We see here opposite the ruins a great bank, while, upon the other side, the ruins of the ancient town are in parlous case because of the erosion of the river. An attempt to stay this denudation is being made by deposits of soil from the excavations.



Photos by permission of the Society for the Promotion of Roman Studies.

"STREET OF THE TIBER" RUNNING FROM THE "TEMPLE OF VULCAN" TO THE WHARVES

From these photographs it is evident that the builders of ancient Rome had little to learn of town planning. Built with symmetry and precision, this street was lined on either side with "Horrea," which were warehouses and depots for the storage of foodstuffs. Brick is the material used in construction, the facing being picked out in bright colours. The upper picture is taken from the north end of the street and faces south towards the "Capitolium" while the lower is the same street taken from the opposite end.



After a reconstruction by Gismondi.

MAGNIFICENT HOMES OF ROME'S SHIPPING MERCHANTS

Adorned with arches and graceful balconies, all of mellow red brick, is this great building that stood in the "Street of the Fountain." Its apparent beauty, and the skilful planning of its internal detail, make one speculate as to whether the highly intricate flat-dwellings of modern cities are much, or at all, superior to the houses of these remote days. One palpable advantage of the ancient Ostian flats is that each separate one had its own street-door. Other aspects of Roman civilization dealt with in this work show that many of the "conveniences" of life called by latter-day house agents "modern" were understood and universally practised by the Romans.



Photo by Dr. Ashby.

ARCHITECTURE OF AN ANCIENT BLOCK OF "FLATS"

Of somewhat different structure from that conventional to the builders of Pompeii are the houses of Ostia. They have no "atrium," or central courtyard and pond, and were lighted by numerous windows opening on to the streets and back courts or gardens. These houses were divided into flats and had as many as three and sometimes four floors. The upper picture is a restoration of the "House of Frescoes," showing its gardens and balconies at the back. The artist's conception of a plaster-covered wall is probably erroneous; it is believed that the red brick was not covered except at the arches. Below: Ruins of the "House of Frescoes."

angles to them both, especially in the northern part of the town. These streets, however, met the coastline and the road that followed it obliquely, and it will be interesting to students of town planning to see, when the excavations have progressed far enough, how the divergent orientations are reconciled. As far as we can judge at present, there have been distinct attempts at compromise. Two difficulties were never absent: the dangerous southerly winds, and the silting up brought about by the Tiber which carries down an enormous quantity of solid matter, so that the coastline at the mouth is still rapidly advancing. Cæsar had, we are told, intended to build a proper harbour, and to dredge the foreshore, but death cut short these and many other of his plans; and we have, from the geographer Strabo who wrote in the time of Augustus, an interesting account of Ostia as "a city without a harbour. . . . The ships anchor in the roadstead, not without risk; but the love of gain prevails, for the large number of lighters which receive the cargoes and reload them allows them to enter the river without great delay, and when they have unloaded part of their cargo they sail in and go up to Rome."

Augustus and Tiberius devoted their attention to the city itself—the original theatre, among other buildings, is due to the former—and it was Claudius who turned his attention to the realization of Cæsar's scheme by constructing a large harbour on the right bank of the Tiber, two and a half miles to the north of its mouth. This part he connected with the river by a canal which formed an island and gave the river a second outlet, thus liberating the city of Rome, as he fondly believed, from the danger of inundation. But he made a fatal error in placing it to the north of the mouth of the Tiber, desiring no doubt to avoid the dangerous southerly winds, for inasmuch as the coastwise current runs from south to north, the silt brought down by the river was deposited in the harbour. That it was difficult to enter, too, is abundantly evident from the fact that 200 ships were lost off Ostia during the reign of Nero.

The reign of Domitian, in the last twenty years of the first century after Christ, appears to have witnessed the beginning of a reconstruction of the town on the same plan as before, but on a higher level, in the form in which it lies before us, but the greater part of the work was done by Hadrian and by his successors,

particularly Septimius Severus. We are not as yet in a position to date the brickwork of Ostia with such accuracy as to determine with certainty the exact period to which each building is to be assigned.

Trajan, on the other hand, who was Hadrian's immediate predecessor, at once devoted his attention to the new harbour, Portus, where he constructed a basin between the harbour of Claudius and the river, and a new canal to the sea, which still bears the name of Fossa Traiana, and is the navigable arm of the river. He also built another harbour, that of Centum Cellæ (the modern Civit  Vecchia), some thirty-seven miles to the north-west, to relieve the pressure on Ostia. Portus was, however, dependent on Ostia, both for administrative and for religious purposes, until Constantine divided the two, and placed the harbour in direct dependence on Rome, so that it appears in his day to have been actually of greater importance than Ostia; and in the time of Procopius (A.D. 537), Ostia was far from the river bank and undefended by walls, and the road to it entirely neglected. Both suffered from the devastations of the Saracens, and were abandoned in the desolation of the Middle Ages.

Ostia became a quarry for the cathedrals of Pisa and of Orvieto, while Porto (the old Portus) was apparently much less ransacked until the excavations of the nineteenth century. Nowadays, there is little to be seen on the latter site. The outline of the harbour of Claudius can barely be traced in the plain, a mile and a half now from the open sea, so far has the coast advanced; the various basins and docks and warehouses of the port of Trajan have been carefully studied and planned by Canina and Lanciani, but now lie half hidden under vegetation, and only the great hexagonal basin which formed the centre of the harbour still contains water. Even it is largely blocked up with reeds and rushes, and is a hotbed of malaria in its picturesque desolation. It is overlooked by the lofty tower of the fortified episcopal palace of Porto, and by the red Villa Torlonia, with its portico of fat columns, which lies on the opposite side of the lagoon.

At Ostia, on the other hand, the last few years have brought about great changes. A sturdy colony of agriculturists from Ravenna has established itself in the medieval village (the walls



After a reconstruction by Gismondi.

BRIGHT VERANDAS AND SHADY LOGGIAS OF AN ANCIENT ARCHITECT

From the ruins at Ostia the artist has reconstructed this handsome five-floored edifice. Underneath the projecting second floor, behind the arches of the loggia, were the shops with their signs above them; at the gable corner is a wineshop. Election posters have been pasted on the arch supports. This street must therefore have been one of the principal thoroughfares of the town in ancient days. Notice the fine flat-stone paving of the streets; the material was the normal lava blocks of Roman towns.



After a reconstruction by Gismondi.

RESTORATION OF THE WONDERFUL "HOUSE OF DIANA"

Built foursquare with thick walls of unfaced brick stood this strong and beautiful house. On the ground floor were shops and offices, entered by the large doorways. To the right are two narrower doorways opening on stairways to the flats above. Underneath the windows of the second floor is a fine balcony of brick adorned with a moulding and supported by graceful arches that were brightly coloured. At the left corner of the top floor the artist has imagined a pillared loggia from which the inhabitants might watch the diverse scenes in the street, or view the busy scene at the docks and river beyond.



Photo by Alinari.

IMPOSING RUINS OF AN ARCHED DWELLING-HOUSE OF OSTIA

The "House of Diana," here illustrated, was built on a model often referred to by classical writers, and its general plan was followed by builders for many centuries after Ostia had been deserted by the inhabitants who feared the scourge of malaria. Many of its characteristic features are evident even in the courtyard buildings of modern Continental cities. In its complete state, the house must have been the object of universal admiration to strangers arriving at the port, as well as to the Roman inhabitants themselves.



Photo by Dr. Ashby

REPAIRING THE RAVAGES OF TIME ON THE BUILDINGS OF OSTIA

Illustrated here is the "Horrea Epagathiana." The workmen are repairing and reconstructing the main doorway of the building in ornamental brickwork with pillars of the same material, and decorative facings of plaster. Such reconstruction must, of course, draw to some extent on the imagination as regards the upper floors.

of which date from 1471), under the shadow of the splendid castle which Giuliano della Rovere (afterwards Pope Julius II.) constructed not many years later to command the bend of the Tiber, but which has been useless since the great flood of 1557 took the course of the river far away.

Already the dreaded malaria is far less of a scourge than it was, while a flourishing suburb is being built on the not very attractive shore a couple of miles beyond the ancient city, and the construction of an electric railway, now nearing completion, will render both the shore and the excavations so easy of access from Rome that they should form part of the programme of any visitor who has more than the bare minimum of time at his disposal. For he will see more of the life of an ancient city than anywhere else in Italy, except at Pompeii (see pages 171—187), where the suddenness with which it was overwhelmed has led to the preservation of so many details and so many small objects that it is in many ways unique.

We are in the presence then, at Ostia, of a seaport town, at which the ships which brought to Rome supplies of food and other necessities, and all kinds of luxuries, discharged the greater part of their cargo. We shall expect to find a great part of the area of the town taken up with storehouses, but we shall also expect considerable evidence of the wealth and importance of a city which performed so important a function for the metropolis of the ancient world, at a time when its population was not far short of a million.

But what will probably surprise us most is the extreme modernity of it all. Pompeii itself has shown, in recent years, that the old conceptions of the monotony of the external architecture of the houses of a Roman town must be abandoned, that their street façades were adorned with loggias and balconies, and decorated with paintings. But at Ostia we have (with only two or three exceptions so far) quite a new type of domestic architecture, which differs entirely from the Pompeian, and approximates far more closely to modern styles.

The "atrium" is lacking from the houses, and light is obtained from numerous windows opening on to streets or open areas (courtyards or gardens). Such houses are divided into a number of apartments or flats, which are quite independent of

one another and are approached directly from the street by different entrances and separate staircases. They reach to a height of three or four floors, the plan of each floor being often identical, and almost always have balconies on the street.

These houses probably correspond to the "insulæ" or tenement houses, of which classical writers speak, and they prove the Roman origin of many of the characteristic features of medieval and modern domestic architecture, which have probably been handed down by uninterrupted tradition. Such a building as the "Casa di Diana" or the "Horrea Epagathiana et Epaphroditiana" is perpetuated in the courtyard houses of medieval and modern Rome. The brickwork was in most cases probably left visible, the arches being picked out in red, as Signor Italo Gismondi's fine restorations show. We cannot attempt to describe the city in detail, but a brief survey of what has so far been laid bare may be given.

The topography of the site is so simple that the shortest description will suffice. Arriving from Rome (at present by motor or motor-bus along an execrable road) we pass by the castle, which now contains a small local museum. Many of the best pieces of sculpture from the site are dispersed among the museums of Europe, while even now many of the best pieces are removed to Rome, instead of being, as might seem better, left on the spot. The castle is built of red bricks taken from the buildings of the ancient city.

Entering the area of the excavations we soon find ourselves in the Street of Tombs. The earlier of these are the little "columbaria" of the first century of the Empire, small chambers round which are niches like those of a dovecote (hence the name). In these, those who could afford it placed beautifully carved cinerary urns in white marble, while the poor had to be content with earthenware urns, built into the wall. These small chambers were finely decorated with mosaic pavements and elaborate stuccoes on the walls, inasmuch as they served for anniversary meetings and banquets of the members of the families or burial clubs to which they belonged. Most of the tombs were used over again in the third century after Christ for burials; bodies were sometimes placed in marble sarcophagi, but more often in compartments separated by thin walls. Sometimes as many as four or

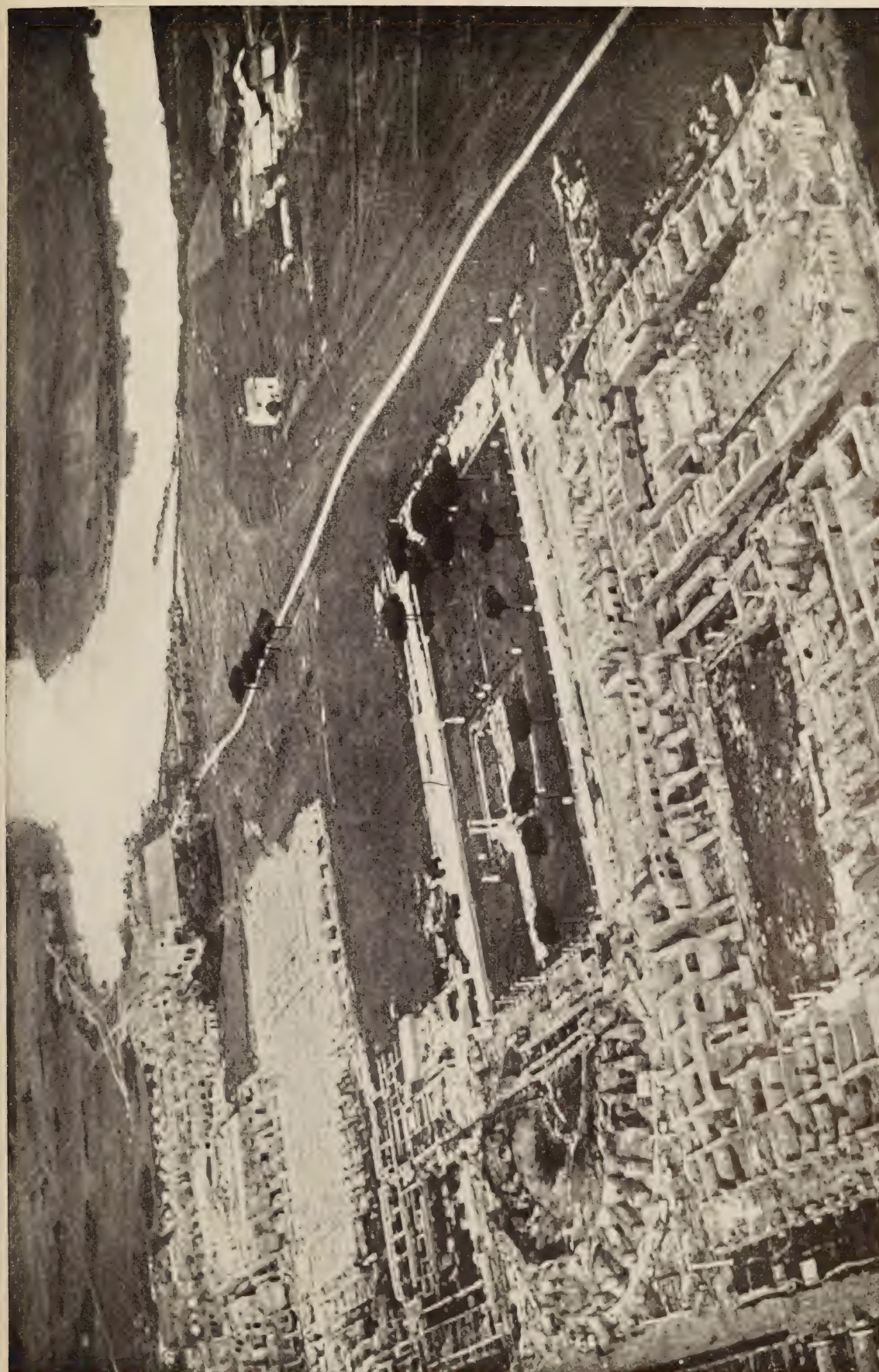


Photo from Dr. Ashby.

A COMPACT CITY, "CLOSELY BUILT TOGETHER": OSTIA FROM THE AIR

In the immediate foreground are the "Thermae," or baths, famous for their mosaics, with the "Palæstra," or gymnasium, behind them. To the right, in the block of buildings separated from the Thermae by the little "street of the Palæstra" are the barracks of the Vigiles (police). The semicircle of the theatre lies on the left with its tree-planted piazza behind, and the Temple of Ceres. Beyond is the Tiber, and the bank of accumulated alluvial silt can be seen at the bend. Prior to the great flood of 1557, the river-bed lay along a line whose direction is now marked by the well defined road running behind the Temple of Ceres and the Barracks of the Vigiles.



Photo by Alinari.

WHERE THE ASHES OF ROME'S SHIPPERS WERE INURNED

Dating from the first century B.C., these "Columbaria" are to be found in the "Street of the Tombs." They were chambers in the walls of which were niches as in a dovecot: hence the name "columbaria" (Latin: columba—a dove). The niches contained beautiful cinerary urns of white marble in which the cremated remains were placed. Poor people of the town who could not buy marble urns had to be content with earthenware jars built into the walls. Remains of many such jars are still in situ.

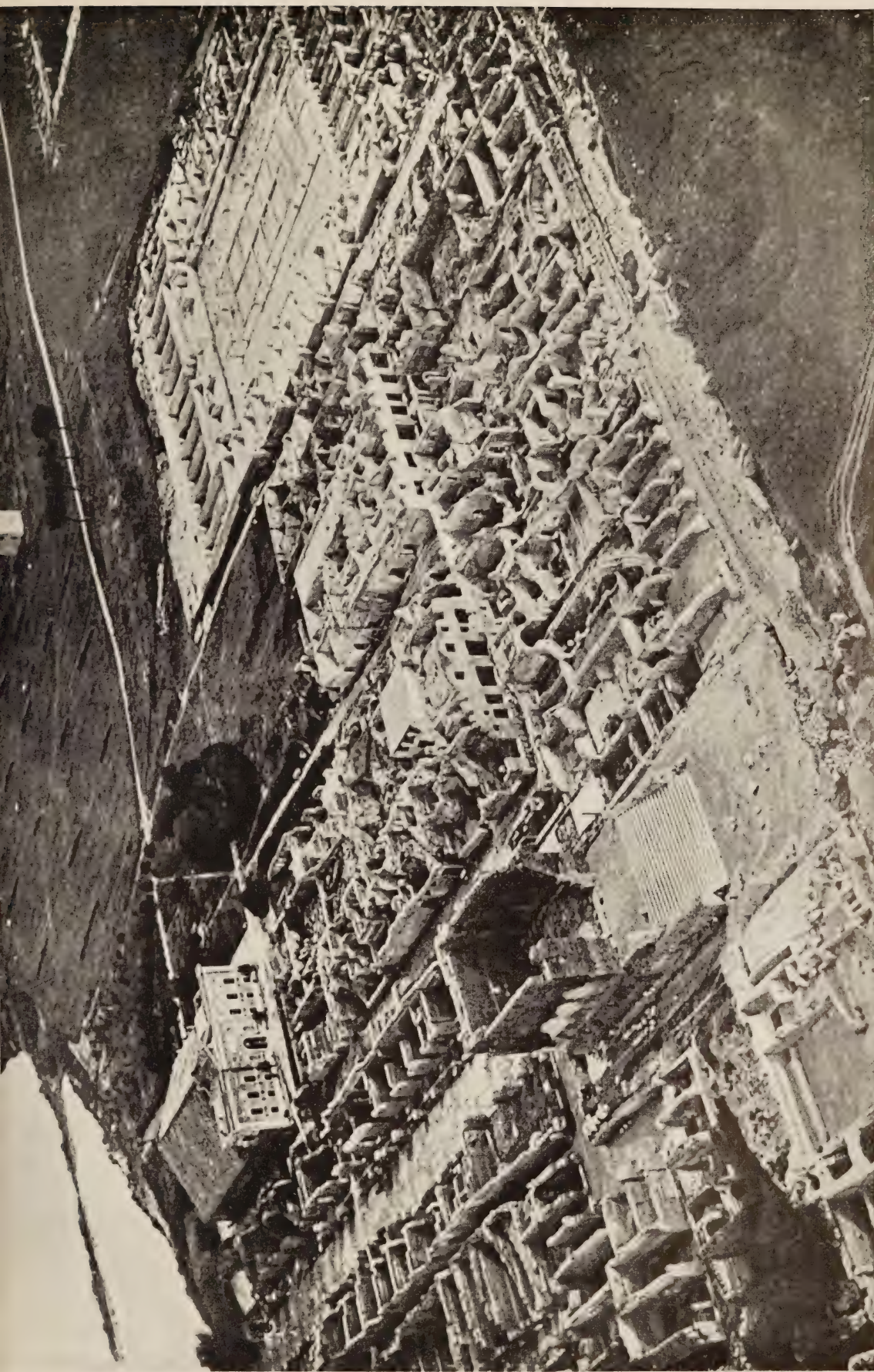


Photo from Dr. Asliby.

THE BUSINESS QUARTER AND WAREHOUSES OF THE PORT OF AUGUSTAN ROME

Beside the square open space on the right are the ruins of the great "horrea," or warehouses for produce landed by ships. To the left of them are the streets which contain the wonderful private houses such as the "House of Diana," and the "House of Friscoes." In the left centre is the massive pile of the great "Capitolium," behind which the so-called "Street of the Fiber" runs down to the wharves. More of these "horrea" are to be seen on either side of this street. The bank in the river was constructed to stem the progress of erosion into the ruins of the city. Notice how the streets all run at right angles to each other.



After a reconstruction by Gismondi.

MAGNIFICENT COLONNADES OF THE DECUMANUS, OSTIA'S PRINCIPAL STREET

Well made and broad to carry heavy traffic to and from the metropolis, the Decumanus ran along the south side of the "Thermæ" and thence out into the country to Rome, between rows of houses and shops. It passed through the old "Roman Gate" and then became a street of "Columbaria," with tombs and sepulchral chambers on either side. The artist has restored, in the foreground, a porticoed fountain, and the great buildings of the baths on its right, with loggias on each floor. On the extreme left is seen the curving wall of the theatre, where traders and shippers, we may imagine, crowded on their leisure afternoons to forget awhile the endless task of feeding Rome.



Photo from Dr. Ashby.

TWO CENTRES OF PUBLIC LIFE IN THE FIRST ROMAN COLONY

Commanding the whole town, not only by reason of its size, but also because it was the shrine of the three greatest deities of all Roman colonies, Jupiter, Juno, and Minerva, the Capitolium was, as it still is, a landmark in Ostia. Its square bulk and rugged splendour make it a really inspiring edifice. Below are the ruins of the theatre whose foundation was laid in the time of Agrippa. It was later restored by Septimius Severus and Caracalla, builder of the famous baths. This view looks into the auditorium beyond the orchestra from behind the "scena" (or stage).



ARCHES AND BALCONIES IN STURDY ROMAN BRICK

Upper picture: Balconied street-front of a house in Ostia. The arches are supported by pillars of brick on which rest brackets of stone. Notice the marble inlay on the third pillar. Lower picture: Court of the house, showing the now vacant "lararium," or shrine in which the image of the Lar, tutelary deity of the home, was placed, and where offerings were made to him.

five corpses were laid one above the other and separated by a layer of tiles.

We then reach the city gate of the time of Sulla, reconstructed at a higher level under the Empire (though the city walls had passed by that time entirely out of use, being no longer needed), and the main street of the city opens before us. It was an imposing thoroughfare, paved with blocks of lava, like all the streets of Rome and the high roads of the Campagna, and flanked on each side by porticoes. It has so far been cleared for almost two-thirds of its total length, a distance of nearly half a mile, but excavation has been almost entirely confined to the buildings on the north and right-hand side of it; and the total area cleared is perhaps not more than one-quarter of the whole site, though it includes a number of the most important public buildings. We will mention and briefly describe a few of these.

The Forum, the centre of civic life, was situated in the centre of the town, on the south side of the main street. It is still under excavation, and has been much ruined; but some very fine remains of the architectural members of a temple of the period of Augustus have been brought to light. Opposite to it, on a lofty base, stands the most conspicuous building in Ostia, which towered above the sand-hills when the rest of the city lay buried beneath them. This has been known until recent years as the Temple of Vulcan, but its position, facing on the Forum, makes it much more likely that it was the Capitulum (a temple dedicated to the three deities venerated in the temple of Jupiter on the Capitol of Rome itself, Jupiter, Juno and Minerva), which is similarly placed in many of the Roman colonies of North Africa and elsewhere in the Roman world. The warm red tint of the bricks of which it is built is very pleasing to the eye, though they were, of course, faced with marble in old days. Their size and the manner of their laying indicates that the temple belongs to a comparatively late date in the history of the town (not before Hadrian certainly); and whether or where this worship was carried on previously we do not know at present.

Two other important groups of public buildings will be found a good deal nearer the gate—the theatre and the colonnade behind its stage, and the baths with the palaestra (or gymnasium) adjoining them.

The origin of the theatre, as we have already seen, dates from the time of Augustus; but it was twice restored, once in the time of Septimius Severus and Caracalla (in 194 A.D.) and once at the end of the fourth century. It is not especially well preserved, though the fine brick cornices of the exterior (here intended to be left visible) are worthy of remark. At the back of the stage was a colonnade, opening upon a large rectangular area, in the centre of which stood a temple, perhaps dedicated to Ceres; while behind the colonnades in the other three sides were the offices of the various commercial corporations of Ostia itself—the weighers, the tanners, the boatmen, the measurers of grain—and of the shipping guilds of the provinces which were concerned in the importation of corn and other supplies—Provence, Sardinia, North Africa and Egypt. The mosaic pavements of the portico, and of the small rooms which open upon it, indicate clearly either by inscriptions actually giving the names, or by emblems, to which of these guilds each office belonged; and we thus have a hitherto unique business centre, in which the shipping agents who were responsible for the all-important duty of feeding the metropolis were centralised so as to be at all times under the direct control of the representatives of the government.

Close to the theatre are the baths, which are only remarkable for the pavements in black and white mosaic with which some of the principal rooms are decorated—very spirited representations of sea deities riding on sea monsters, in which the vigour of the composition makes up for defects in detail. Adjacent is an unusually large open-air palæstra, where gymnastic exercises went on.

Behind the baths lies a large private house, which was turned into the barracks of the “Vigiles,” a military force which performed the duties of both the police and the fire brigade of a modern town. Outside the main gate were some small drinking shops, and their presence explains how it was that many of the soldiers, shut out of their barracks at night, scratched their names on the doorposts. Within the most prominent part of the peristyle is the shrine of the Imperial House, with pedestals which once bore statues of successive rulers, to whom, as the mosaic pavement shows, a bull was periodically sacrificed.

For the rest, that part of the city which has been uncovered



Restoration by Gismondi. Photo by Dr. Ashby.

WHERE THE "RICH FALERNIAN" WAS DISPENSED: A BAR IN ROMAN OSTIA

The restoration above shows a drinking-shop which occupies the central one of three arches supporting the balcony of the flat on the second floor. In the lower photograph are seen the remains of the bar. The broken counter has a sink below it, and behind is what remains of a stone dresser.



MAIN STREET OF OSTIA AS IT IS, LOOKING EAST

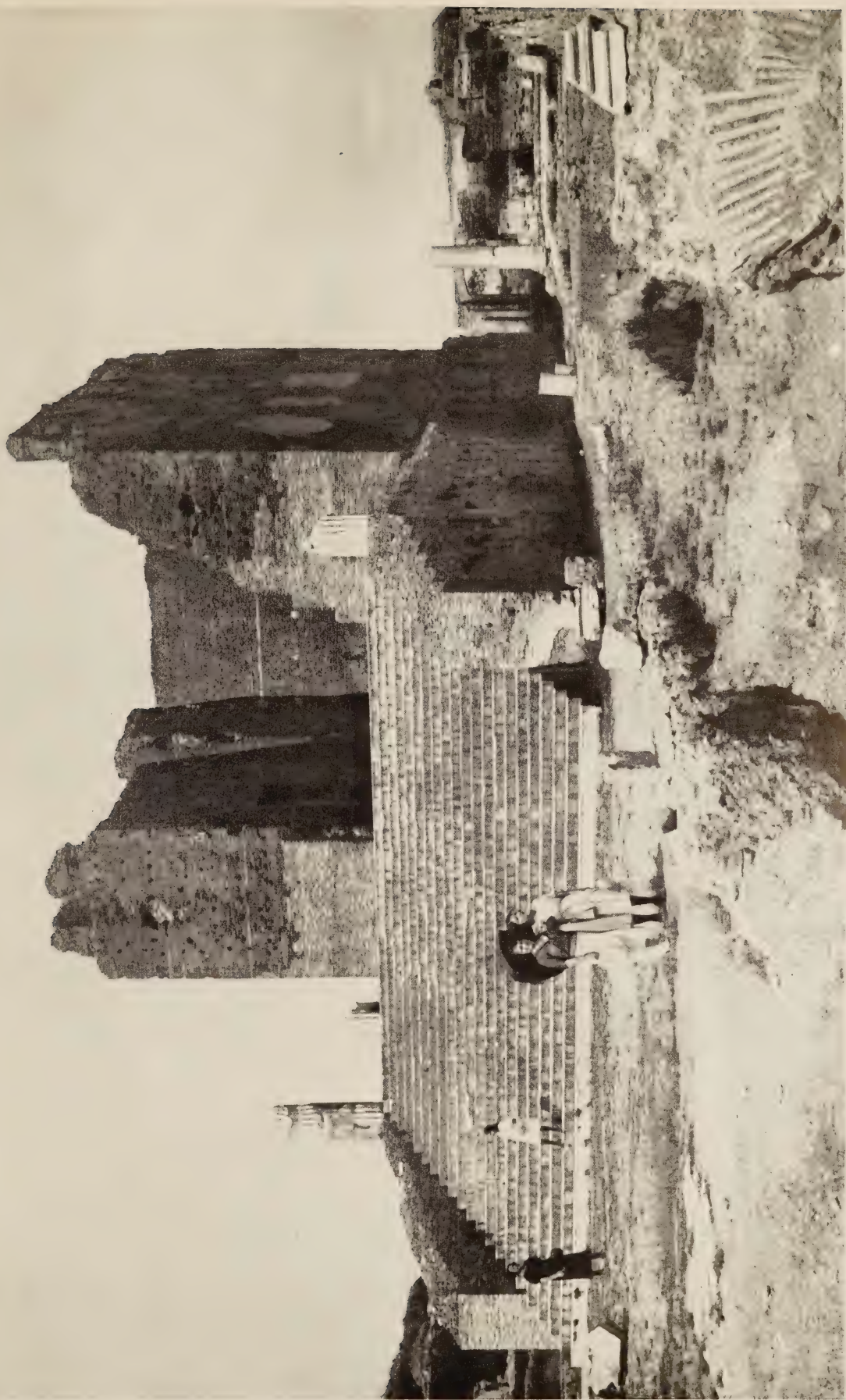
Taken from the upper part of the theatre, this photograph shows in the foreground four remaining columns of the colonnade of the "Thermae." Passing between rows of houses, it is eventually flanked by sepulchral "Columbaria." In the distance is the Castle of Giuliano della Rovere, built about 1500, to command the bend of the Tiber before it. But in 1557 the river's course was so altered that since then the castle has ceased to serve its purpose.



Photos by permission of the Society for the Promotion of Roman Studies.

GREAT JARS THAT HELD THE CITY'S OIL SUPPLY

On the west of Ostia, beyond the city bounds, are these so-called oil stores which are divided into rooms containing oil jars. The one illustrated above has in it about twenty such "dolia," or storage jars. As the river washes past the walls, and constant erosion goes on, these ruins are in a most precarious state. This building is divided by a passage which, according to some authorities, was once used as a thoroughfare, probably for servants of oil merchants coming and going to empty or to fill up the storage jars.



CENTRE OF RELIGIOUS LIFE IN OSTIA, AND MOST COMMANDING OF HER WONDERFUL RUINS: THE GREAT "TEMPLE OF VULCAN"

Commonly known as the "Temple of Vulcan," but more likely to have been the Capitolium, or Temple of Jupiter, Juno and Minerva, this great ruin stands at the south end of the "Street of the Tiber" on a lofty substructure which is occupied by extensive vaulted chambers deriving light from loopholes, such as may be seen on the side wall, bearing inscriptions on their exterior facings. The "cella" above, built like the foundation of red brick, was formerly faced with marble, as the holes in the brickwork show, and has three niches in either side of the interior walls for statues. In front was a "pronaos" (fore-temple) of fluted marble columns, the remains of three of which are still standing. The scattered entablature lying around belongs to a restoration of the temple carried out by Septimius Severus.

consists mainly of extensive storehouses of varied plan. There is generally a central courtyard round which are disposed numerous chambers, in two or more storeys, in which grain and other objects were placed. In the grain stores there are air-spaces under the floors, with holes under the thresholds to ensure proper circulation. There are numerous shops, of course, along the streets (in one case grouped into a regular "bazaar" round a courtyard), and we meet with an occasional drinking-bar—one of which has a "counter" of coloured marbles, with a trough for washing below, a dresser with marble shelves for food, a wine-cellar, etc., giving an impression of extraordinary modernity.

The finest productions of art that Ostia has produced are the numerous sculptures in marble, many of which have long adorned the museums of Europe; but those that have recently been discovered need not fear comparison with those that are already known. A few examples may suffice: the splendid winged Athene Nike from the city gate (derived from an original of Greek art of the fourth century B.C.); a girl of the Julio-Claudian period in the character of Artemis; and Sabina, the wife of Hadrian, as Ceres.

The several paintings, on the other hand, are not nearly so interesting nor so important as those of Pompeii, and are, besides, distinctly inferior to them in execution. But Ostia on an evening in spring, with its massive walls of concrete faced with brickwork which glows warm red in the setting sun, lying near the winding Tiber in the centre of green fields, with the pine forests of Castel Fusano close by, and the hills that encircle Rome in the farther distance, has a charm peculiarly its own. It gives a far greater impression of strength and massiveness, too, than Pompeii, the houses of which are largely built of concrete faced with rough pieces of stone, from which the once gaily painted plaster facing has been removed by the ravages of inexorable time.

To compare Ostia with Tilbury is true only as regards its function—that of the port in which ships discharge a part of their cargo before coming up the river. Its outward appearance was very different, and Ostia, in this regard, has nothing to fear from comparison with that incomparably dingy suburb. And yet in the days of Queen Elizabeth, when the Thames was really a silvery stream, the comparison may have been a good one—except

that the town of Ostia appears to have had a far greater relative importance. For a vast amount of business seems to have been done there, and a large quantity of merchandise stored in its warehouses before being conveyed to Rome or elsewhere either by road or by the water route.

We learn what we know of its ancient life much more from its ruins and from the contemporary inscriptions that have been found there than from anything that ancient writers tell us. The economic life of an ancient city, even of Rome itself, interested them not at all. They do not record the growth or fall of its population, the rise or fall in price of any single article of food, nor yet its daily and its yearly consumption.

All these things are largely a matter of conjecture still, and we shall probably never know the answer to one tenth of the questions that we might wish to put. But a visit to Ostia will certainly stimulate us to thought on these and other questions, and on the problem of the daily life of the great capital for the sake of which it existed—problems which, however remote they seem to us, were, despite the imperial corn doles that kept the poor alive and prevented them from grumbling aloud, just as real and as urgent to the Romans of the Empire as they are to the government of to-day.

ANCIENT ARTS AND CRAFTS. IX
MASTER ARTISTS OF THE STONE AGE

By E. G. HARMER, F.R.A.S.
WRITER ON ANTHROPOLOGY AND ARCHÆOLOGY

MASTER ARTISTS OF THE STONE AGE

PICTURES THAT MAY HAVE BEEN PAINTED 50,000 YEARS AGO!

BY E. G. HARMER, F.R.A.S.

WRITER ON ANTHROPOLOGY AND ARCHÆOLOGY

OF all wonders of the past, there is none that makes a stronger appeal to the imagination than the paintings that still survive from the Stone Age in the caves of Altamira and Font-de-Gaume; none that so stuns the mind with a sense of awesome antiquity, compared to which the Pyramids themselves seem modern! It is humiliating to our pride of progress to contemplate the perfection of line and the highly developed technique attained by artists who painted in dark caverns more than 20,000 and possibly 50,000 years ago. These drawings, so deftly copied by that devoted enthusiast, the Abbé Henri Breuil, are here reproduced from the two great works which science owes to the late Prince of Monaco: "*La Caverne de Font-de-Gaume Aux Eyzies (Dordogne)*," by Capitan, Breuil and Peyrony, and "*La Caverne d'Altamira à Santillane près Santander (Espagne)*," by Cartailhac and Breuil.—EDITOR.

ON a bleak winter day late in 1879 a Spanish nobleman, Don Marcelino de Sautuola, was engaged in exploring a prehistoric cave close by his home at Santillana. It was one of the many long and tortuous galleries which ancient rainstorms carved out of the limestone ridges overlooking the Bay of Biscay behind Santander. Some years before a hound followed a fox into this unknown "earth," and in order to save it the huntsmen enlarged the hole, but had no eyes for what lay within. Even when, as time went on, the explorer turned his thoughts to this fox-hole, his sole hope was to add to the store of flint implements, fossil bones, and other Stone Age remains which he had unearthed within its entrance four years before.

On this fateful November day Don Marcelino was groping about in a gallery so low that he could not stand upright in it. His little girl, who chanced to be with him, was making observations of her own in greater freedom, when she suddenly stood still, and cried out "Toros" (bulls). When her father turned to

her he found her pointing to the roof, where, to his amazement, he descried a group of fresco paintings. Even with his dim illuminant there were revealed, drawn with lifelike vigour in gleaming reds, blacks and yellows, a score of bison, some boar, a deer and other game.

When, a few months afterwards, the existence of a prehistoric academy in a Spanish cave was announced to the world, its discoverer drew upon himself much scornful scepticism. But before very long the walls of other caves, far and near, revealed, one by one, examples of the same vivacious art, and to-day thousands of these paintings and engravings, enshrined in more than fifty caves, are recognised as the authentic achievements of the world's first artists.

Let us select for consideration the three outermost subjects in the great ceiling fresco already mentioned. It lies over an alcove within a cavern now immortalised under the name of a neighbouring meadow, Altamira. The bison which, like many of its companions, is 5 feet long, is the best conserved of them all. The red and black body-colour was lightened by scraping on the loins and other salient parts, while a stone burin gave definiteness to eye, horn and muzzle, the fore hoof, and the whip of the quivering tail.

The deer, $7\frac{1}{2}$ feet long, exhibits equal mastery of form with a somewhat different technique. The subject is firmly and yet delicately outlined in black. After the addition of the red body-colour in a uniform layer the effect of chiaroscuro was secured by scraping, while near the rump a dry chalky mass was impasted, as if by a palette knife. The eye was badly placed, and an ineffective attempt made to efface it. The galloping boar, $5\frac{1}{2}$ feet long, being nearest to the entrance, has suffered most from recent atmospheric condensation. Yet it still retains its pristine vitality, and the skilful way in which it was worked over imparts to the drawing a singular quality of brightness.

Two decades elapsed before a learned French abbé, Henri Breuil, lit upon another great subterranean gallery high up on a cliff side in a romantic Dordogne valley. This cavern of Font-de-Gaume, separated from the Cantabrian art centre by more than three hundred miles, maintained a school of painting animated by the same high purpose, the same vivacity of portraiture.



BISON, CLOSELY OBSERVED, IN NATURAL AND FAMILIAR ATTITUDES

Two Altamira bison, one standing up and lowing, the other lying down. Painting is not the only art involved in these representations; wherever possible, advantage has been taken of the contours of the rock in order to bring out salient features, while emphasis is given to important lines by incision. Over certain areas, too, the surface has been prepared for the paint, or the painted surface lightened, by scraping.



STURDY BOAR AND SLENDER DEER DRAWN WITH EQUAL DEFTNESS

The upper of these two paintings (both of which, in common with the others here reproduced in colour, are from the Altamira cave) is of particular interest as showing the way in which new pictures were superimposed on older ones as they became obsolete; the earlier boar was drawn galloping, the later walking, from which results a curious cinematographic effect. Below is a deer with a small bison in black.

So uniform is the style that it would not be easy at a glance to say of an unlabelled bison that it was a "Font-de-Gaume" and not an "Altamira." But this more northerly academy also drew animals of which the Cantabrian painters seem to have known little, if anything at all.

There is, for example, a drawing of the long extinct woolly rhinoceros, sketched in with swift red strokes upon the wall. The economy of effort which suggests not only the woolliness of the pelt but also the rotundity of the body, the careful delineation of the horns and other details of the anatomy, all merit unstinted praise. Another experiment, equally successful, is observable in the mural drawing of a wolf. The animal was drawn in black upon a panel of red paint, and then touched up by skilful scraping. Still more agreeable is a group of two reindeer facing each other, the heads lowered as if browsing. The antlers are shown partly in full face, and the whole composition exhibits the marvellous proficiency of this primeval art at its best.

Of these polychrome frescoes the reproduction has been made possible by the assiduity and skill of the Abbé Breuil himself. Others, done in monochrome, reveal a similar level of artistry. Among them line drawings in black of the mammoth abound. The massive bulk, hairy integument and purposeful tusks are delineated with a sureness of touch that points to their having been drawn from the life by contemporary man. So too with the horse, which in every period covered by the cave art may have been as yet no more than wild game. Several varieties are clearly distinguished, as in the admirable sketches of heads at Altamira and elsewhere, or the virile profiles of Hornos de la Pena and Niaux, on opposite slopes of the Pyrenees.

As for cave-bear, there is a fine study of one in an erect posture at Font-de-Gaume, and another, in the act of ambling, in the neighbouring grotto of Les Combarelles. Fish are rarer, but on the floor of the great Niaux cave sanctuary are engraved some salmon-trout, while on the wall of the romantic cavern of El Pindal on the Spanish coast, approachable only from the sea, there is a fine engraving of a tunny. Birds are scantier still, both in art and in the kitchen refuse, perhaps because the bow and arrow had not as yet been born.

Of the remote antiquity of this remarkable art there is now

no question. Some examples have been preserved behind films of stalactite whose deposition demands prolonged periods of time. Some lay concealed beneath the household litter of later tribal communities whose handiwork is mingled with the bones of animals which became extinct, either in Western Europe or in the whole wide world, before recorded history began. At the great Spanish cave of Castillo, a rival of Altamira, some works were clawed by cave-bears of a type that did not survive the artists themselves.

This whole art movement, indeed, pertains to a civilisation whose apogee was reached before ever man smelted a metallic ore, burned a clay pot, wove garments out of wool or flax, or knew aught of the tillage of the ground and the taming of animals. It synchronises with what are called the Aurignacian and Magdalenian epochs of the Upper Palæolithic or Old Stone Age—the first-named epoch being so called from the cave of Aurignac, in Haute-Garonne, France, where industrial remains of the age and type in question were first reported in 1861, and the other epoch deriving its name from the ruins of La Madeleine in Dordogne. At that time Western Europe was occupied by a long-headed race, whose livelihood depended upon the toilsome quest of game and the cunning of the fisher's art. It was the hunting life at its highest and yet, for all its remoteness, it was the threshold of the modern world.

The palette of these first artists was resourceful in the extreme. From ferruginous earths they prepared reds, yellows and browns. For black they used manganese oxide as well as lamp-black. For white they had chalk and, later on, china clay. Where ochreous deposits were plentiful, as at Noailles, eastward of Font-de-Gaume, the gamut ranged from pale yellow, orange, rose and vermilion to purple, maroon, brown, sepia, dark blue and black. Sometimes the pigments were stored in tubular bones, and after being rubbed down in stone or horn mortars were spread with animal fat by bone spatulas upon schist palettes, shoulder-blades or bivalve shells. Crayons were fashioned from lumps of pigment, and sometimes pierced for suspension round the neck. Of all these artists' materials actual specimens survive, with the exception of the brushes themselves.

This astonishing art did not spring up in a night. Its de-



BOAR AND BISON IMMORTALISED BY STONE AGE ARTISTS

Above, a galloping boar of even more vigorous traits than that on the preceding coloured page; below, a further example of superimposition—a lowing bison upon another, much defaced. In the two previous coloured pages are seen some of the signs that are such a puzzle; some have been called "tectiform," from a supposed resemblance to houses, while it has also been suggested that they may represent traps.



ROBUST, VIGOROUS, WARM WITH LIFE, A BISON FROM ALTAMIRA

The æons that must be retraced before we reach the date at which this bison was painted make the whole of history as we know it seem like a crowded moment of action at the end of a long, slow day; and yet it will compare with many a modern work, and in the comparison give a corrected view of our vaunted progress. It is the best preserved of the paintings in the Altamira cave.

velopment has been patiently traced out by the unrivalled genius of Henri Breuil and by a host of other workers. There are to be recognised four main phases in its history, beginning with the early Aurignacian meanders and culminating in the Magdalenian frescoes; it was a time of progress, of unceasing purpose. These primeval hunters were not degenerate savages, but the flower of mankind, bearing within themselves the promise and potency of ages yet to be. The nomad hunters of the pre-metallic age, utilising to the full the resources at their command, were ever reaching out for new conquests of the mind.

At first the contours were made upon soft clays by the bare fingers, or by pronged substitutes for them. When harder surfaces were attacked graving tools were contrived out of flint points and scrapers, until these in their turn gave way before the brush and the chisel-edged pencil. At one stage the natural projections of the rock were utilised for forms of low relief; sometimes the flattening of the rock around the contour achieved similar results. The value of line and stipple was appreciated, and there was thus no lack of variety in the art forms.

While the palæolithic "old masters" are best known by their mural frescoes, they doubtless used other media as well. The presumption that, in the forest glades and on the river banks, they made preliminary studies upon slices of bark or prepared skins, and employed them as memory aids for the subterranean works, is not unreasonable. That in the useful crafts, as well as for art training, materials were enlisted which have long since perished cannot be doubted. The cave art, unequal though it be, was essentially mature. Art students no more dreamed of misusing the cave walls as a practising school than their living successors would desecrate a chancel with elementary studies. Except on engraved stones and horns the trial pieces have passed away. An inspection of these early works, however casual, inevitably incites an inquiry as to their motive and purpose. Were the drawings the outcome of a desire, on the part of the beholder no less than of the craftsman, for the pure pleasures of art? Are we here in the presence of a manifestation of the æsthetic sense, the feeling after ideal beauty, and of that alone?

To answer this question the conditions under which the pictorial art is presented claim attention. The most primitive works

were executed, not only in tortuous caves bereft of daylight, but almost always in their remotest recesses, and in these alone. Among the many caverns near Font-de-Gaume there are two called La Mouthe and Les Combarelles. In the one the engravings do not begin until after 100 yards have been traversed; in the other they are 135 yards from the entrance. At Niaux, which is nearly 1,600 yards long, a full half mile must be penetrated before the animal drawings begin, and some of them have been purposely wrought in almost inaccessible corners. The great Altamira fresco is in a side-chamber nearer the entrance, but the height of the roofs varies from 3 to 6 feet, so that both artists and beholders had to stoop, if not even to lie upon the back. On the other hand, engravings were sometimes executed in daylight on shallow rock shelters, having been preserved through the ages solely by the accidental fall of débris.

The artificial light needed for these studies was furnished in part by stone lamps, such as the Eskimo use to this day. One of them, carved out of sandstone, with an ibex engraved upon its concavity, still bears a blackened film left by the desiccation of the grease. Hardly ever are paintings found in chambers occupied by the hunters themselves at the time, or such as could be visited by them, as one nowadays resorts to the Royal Academy for a private view. They were never drawing-room pieces. The explorers of Font-de-Gaume were convinced that it was devoted wholly to ritual uses, and that its mural pictures were executed for the community whose habitat lay in neighbouring caves and rock shelters at Les Eyzies. Here numerous decorated implements attest a steadfast regard for magical potency, as well as for artistic excellence, in the commonplace accessories of life. But the walls themselves are bare.

The very nature of the subjects portrayed has its tale to tell. Over the prolonged period during which this art was slowly climbing to its apex the main purpose of the artist was to depict single animals. Of these the useful big game predominate. At Font-de-Gaume, apart from its untinted outlines, there are paintings of about eighty bison, forty horses, twenty-three mammoths, seventeen reindeer and stags, and a dozen oxen and goats. Cave-lions, wolves, and other beasts of prey are rarely portrayed. The range of themes is conditioned by their economic importance



"OLD MASTERS" WHOSE AGE AT A MODERATE COMPUTATION IS 50,000 YEARS

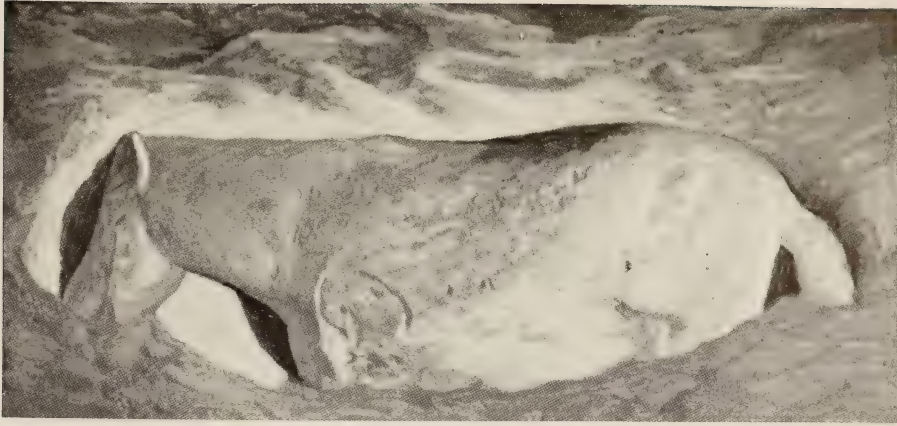
Before turning to the individual subjects that exercised the palaeolithic cave-painter's art, we reproduce a drawing of the ceiling fresco close to the entrance of the famous Altamira cave in order to give an idea of the grouping and general appearance of these wonderful masterpieces; the drawing was made by Don Marcelino de Sautuola, their discoverer. But no less important is it for their true appreciation to get some idea of their immeasurable antiquity. Bald figures at best mean little, and in any case the dating of such remote epochs is so uncertain that some authorities double or halve the results of others. Let it be said then that the Neolithic or New Stone Age, before the discovery of metal, makes the whole of recorded history seem but a day, while the Palaeolithic or Old Stone Age, to the latter half of which these paintings belong, was at the lowest estimate three times as long again.



From "La Caverne de Font-de-Gaume," by Capitan, Breuil, and Peyrony.

ENTRANCE TO ONE OF THE OLDEST PICTURE-GALLERIES IN THE WORLD

The drawing in the preceding page comes from Altamira in Spain, but the artistic culture which it revealed extended on both sides of the Pyrenees. These photographs show the setting of a cave on French soil that has yielded a rich store of paintings. Above, the rocky, water-tunnelled bluff of Font-de-Gaume, commanding the valley of the Beune in the Dordogne—the entrance to the cave is marked with a cross; and below, a closer view of the entrance—the tunnel on the right is the principal one.



STONE HORSE THAT COMES TO US FROM THE DAWN OF TIME

At Cap Blanc is to be found this stone sculpture in deep relief of the head and body of a horse. While apparently later than the cave paintings in date, there is no reason not to assign it to the same race and to the same art impulse; it exhibits identical features of ease and fidelity to nature. It is now preserved as one of the national monuments of France.



PAINTING RIVALLING MODERN SCHOOLS OF AN ANIMAL LONG EXTINCT

Unlike the browsing reindeer, this woolly rhinoceros (one-fifth original size) is an outline drawing done in red with bold, free, unhesitating strokes that admirably indicate his pelt and anticipate the impressionist art of to-day. But even as we realise this there comes the thought that the animal thus portrayed *is now extinct*. How long is it since reindeer roamed a glacial Southern France? How long since the woolly rhinoceros was a danger to hunters? About 17,000 years is the least ever proposed, but 50,000 years would be considered an exceedingly moderate reckoning by many experts; exact dating is out of the question.



REINDEER RICHLY LIMNED WITH ALL THE SUPPLE GRACE OF LIFE

Nothing could be more baffling, in view of their inconceivable antiquity, than the faithfulness to nature of the paintings reproduced in this and the following illustration page: perhaps the most striking examples offered by the Font-de-Gaume cave; not for many a millennium afterwards did the human race attain to such a pitch of art. Here two antlered reindeer are browsing quietly face to face; the execution is polychrome, in varied shades of red, brown and sepia. The boldly sweeping antlers are rendered partly in profile, so that the early artist was not wholly ignorant of the principles of perspective; and to these marvels we must add that the painting was done in a cave that never saw the light of day. The reproduction is about one-tenth original size.



UPSTANDING BULL THAT SEEMS ARRESTED IN MID-GALLOP

Hitherto we have been considering painting in which colours, one or several, were employed. But Font-de-Gaume can also produce works executed in black that stand in relation to our modern charcoal drawings; the pigment was obtained from lamp-black or manganese oxide. Such is this bull whose proud spirit seems unabated by the lapse of time. Reproduction between one-seventh and one-eighth original size; that of the wolf below about one-fourteenth.



THE SCOURGE OF THE PALÆOLITHIC HUNTSMAN

Another procedure is illustrated by the head and forequarters of a wolf from the cave at Font-de-Gaume; it is done in black outline and shading on a prepared surface of red. What is so striking about these paintings is their absolute sureness of touch. Of many animals drawn in later ages we can only say that they are animals; but who could doubt that this is a wolf?



THE HORSE PORTRAYED IN BLACK AND GREY

Two horses are placed together in this page for comparison, this one from Font-de-Gaume, and the one below from Altamira. The example above is done in shaded black, and apart from the unrivalled vigour of the pose shows the complete mastery attained over chiaroscuro effects. It must be remembered that the horse was undomesticated as yet and hunted as game.



THE HORSE IN SHADES OF RED AND BROWN

This horse from Altamira is of interest as showing the haphazard way in which one picture encroached or was superimposed upon another when, for some reason, the first had become obsolete. Here the horse has been painted in polychrome over an earlier rendering of a doe. Further examples of the polychrome work of Altamira are shown in the colour section.

and not by their aptitude for yielding a good picture. That they were not treasured as masterpieces is shown by the fact that again and again an artist used for his "canvas" a surface already painted without troubling to erase it. It was as if the earlier one had become, not old-fashioned, but impotent to fulfil some purpose. But besides the "fine art" of these primitive draughtsmen other forms of graphic expression were also practised. Some caves contain silhouettes of human hands, stencilled around, or impressed by, the living hand. At Gargas, in the French Pyrenees district, where there are 150 such designs, most of them show amputated fingers. That they are of early date is determined by the crude mud outlines of the same age, and indeed the first pictures ever painted may have been these very hands that we are considering.

Elsewhere a multitude of designs of artificial objects, seldom rendered with realistic care, appear to symbolise traps for securing big game, sledges for transporting prime joints to the homestead, curved throwing-clubs, and other appliances of the chase. In the great Niaux sanctuary there is on the floor a sand drawing of a wounded bison, and even a human footprint, both glazed with stalagmite by the hand of time. So also lances, traps and sledges are often depicted upon the flanks of bison, clearly for practical ends. Indeed, the drawings compel the inference that they were a kind of sympathetic magic, produced primarily as aids to good hunting.

From the use of animal masks as accessories for stalking big game there arose the practice of masked dances and ritual masking. In a recently explored Pyrenean cave, called the Three Brothers, there occurs a chamber presenting a whole galaxy of animal drawings. They are all dominated by a picture, twelve feet from the ground, of a sorcerer masked in a skin overall, with stag antlers, a horsehair beard and a horse's tail. The portrayal of the human form in that age was apparently tabooed, lest evil should be wrought upon the person. Such examples as remain, whether in sculptured relief or in flat outline, are rude and poor in the extreme.

Thus the general conclusion emerges that the impulse behind this pictorial art was a magical one. It was an expression of the emotions in a magico-religious atmosphere. Recognising the

existence of invisible powers more potent than their own, these early worshippers sought to bring themselves and their daily needs into contact with the unseen by graphic means. The pictures served to rivet the attention of the hunter when making ready for the chase, and by their mystic influence, aided by the ritual acts of the sorcerer, attuned his thoughts to the expectation of success.

It is tempting to speculate upon the social organization developed by these early hunters. The very existence of graphic art shows that life was no mere drudgery. Division of labour was carried far. There were not only industrial experts but from time to time dominant thinkers and other outstanding men. That the magico-religious leaders were not themselves the producers of the pictorial accessories of their cult is a reasonable inference. There was apparently a caste of trained painters, perhaps in part hereditary, who exploited their skill in the treatment of line and colour as a vocation. This is why their works not only came to be ritually efficient, but also to be aesthetically good. This also is why the craftsman now and then poured out his soul in a riot of artistic feeling. An interesting work of this genre is an engraved reindeer antler found in a French Pyrenean cave at Lortet. It portrays a group of stags and salmon, perhaps to denote the crossing of a stream. It is much weathered, but with the aid of a charming restoration proposed by himself Sir Edwin Ray Lankester claims it as the oldest picture in the world.

This amazing outburst of art, after reaching its zenith, seems to have faded more or less suddenly into oblivion. For an explanation of this episode in the history of painting we may perhaps invoke the relative scantiness of the painters' order, which arose at the bidding of a self-contained community by which the hunting industry was raised to a high level of opulence. The manner of its decline may be hinted at by turning to another school of prehistoric art in Eastern Spain.

Upon the exposed background of rock shelters, such as the famous localities of Alpera and Cogul, there have been traced out strange medleys of ancient designs. Among them prehistoric scholars discern vestiges of an inspiration derived from the Mag-



WILD CATTLE, THE QUARRY OF THE CAVE MAN, DRAWN AS THE HUNTERS SAW THEM

We now turn to the Altamira cave again and find such similar styles of art as can leave no doubt of a common culture behind them. Here we have two polychrome paintings apparently done at different times, as one has half obliterated the other; on the left are the head and shoulders of a bull, on the right is a bison. Is it possible in any measure to reconstruct the life of the people who worked so nimbly and so well? They must have lived in tribal communities, although the family group appears to have been the rule during the greater part of the Old Stone Age; fire had been discovered, if recently; clothing of skins was known, as we may judge from finds of bone needles, but not usually worn except for ceremonial purposes; finally, hunting was the sole mode of life, and though the hafting of stone weapons had recently been invented, their polishing and the use of the bow were yet to come.



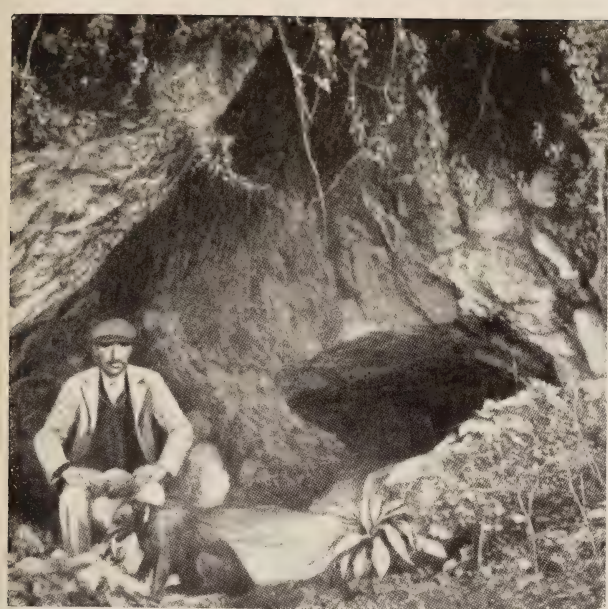
SORCERER GARBED AS AN ANIMAL

Figures of human beings are not very common until an age slightly later than that represented by the wall-paintings under consideration. But in the cavern of the "Trois Frères," near St. Girons, there is a wonderful representation, part painted, part engraved, of what is supposed to be a sorcerer wearing antlers, mask, beard and tail for some magic rite.



RELIEF OF A WOMAN HOLDING A HORN

The ancient artists engaged not only in painting, but in modelling and sculpture; the two, however, are found predominant on separate sites and represent different art phases. This figure of a steatopygous female comes from a rock shelter at Laussel in the Dordogne district—steatopygy, or a fatty development of the thighs, still characterises certain backward races.



ENTRANCE TO THE GROTTO OF ENLÈNE

A mountain in the foothills of the Pyrenees, near St. Giron, is riddled with water-worn caves. The entrance to one of them, known as the Grotto of Enlène, is shown above; it yielded a rich find of palæolithic remains. In another, called the Tuc d'Audoubert, were discovered the clay bison shown below.



MALE AND FEMALE BISON FASHIONED FORTH IN CLAY

The astounding bison of the Tuc d'Audoubert were the first indication that the palæolithic artist not only painted and engraved, but modelled in clay. Taken under the most difficult conditions by the light of an acetylene lamp, this photograph scarcely does justice to them, but it would be genuinely hard to exaggerate their real excellence of line and proportion.

dalenian school. These peoples, perhaps swarming up from the southward, learned to practise new elements of style, and to present a new outlook upon life. There are scenes of warfare and the chase, besides ritual dances and domestic incidents. Accuracy of drawing was sacrificed to vitality of movement. A strong human interest was introduced. At Alpera, out of 150 figures, half of them are men and women. These are not delineated with the careful eye for portraiture observed in the Altamira animals, but the æsthetic impulse is more marked. From the technical standpoint they represent a decadence of the early art, and pass by stages into careless stylism.

By that time Europe was being peopled by new immigrants from the east. No longer huntsmen, they sought their subsistence in pasture and tillage. Nowhere does neolithic Eurasia offer evidence either of a knowledge of the Magdalenian paintings or a capacity to emulate them. No great pictorial art was to arise in the world again until, after millenniums of years, it emerged once more under the incentive of the new civilization due to the conquest of metals. The Old Masters were by then unknown, and the "art nouveau" of Egypt, Crete and Hellas had to grow by slow and painful stages, until at length there dawned upon the world another age of gold.

Some remarkable cave paintings in other parts of the world demand a passing word. Those produced by the Australian blackfellow and the South African Bushman yield interesting parallels, reminiscent of man's earliest art. They also have delineated, upon cave walls and rocky surfaces, useful animals, as well as mutilated hands, masked dances, ground drawings and the like, under conditions pointing to a ritual intention. That this art is not intuitive is clear from the many lowly hunting peoples, such as the Andamanese, to whom it is unknown. This is not to say that in Australia and South Africa there survive direct descendants of Magdalenian man. But one may with advantage speculate how far their cruder efforts are due to the persistence in racial memory of artistic impulses that first became part of man's mental equipment and inheritance in South-Western Europe, in those far off days when all the world was young.

THE MASTER BUILDERS. VIII
HADRIAN'S WALL: RELIC OF
ROMAN BRITAIN

BY JESSIE MOTHERSOLE

HADRIAN'S WALL: RELIC OF ROMAN BRITAIN

BY JESSIE MOTHERSOLE

Author of "Hadrian's Wall"

THE writer of this contribution is the author-artist of an admirable work describing the whole length of Hadrian's Wall with the pleasantest historical and topographical allusiveness. The book in question, first published in 1922 by Mr. John Lane, of the Bodley Head, London, is illustrated entirely with Miss Mothersole's own drawings in colour and in black and white; but for the purposes of WONDERS OF THE PAST, in which the pictorial documents must be, wherever possible, direct photographic reproductions, a series of admirable photographs has been secured by the author; these, with the exception of the one facing page 775, have been taken by Mr. John Gibson, of Hexham. Those desiring to pursue the subject beyond the bounds of a single chapter can be recommended to Miss Mothersole's book, the title of which is "Hadrian's Wall."—EDITOR.

"HADRIAN'S WALL," as marked in the atlases of our schooldays, cutting Great Britain into two separate halves, has always suggested, by its position and its attractive name, something romantic and mysterious and stimulating to the imagination. Who has not in childhood wondered what was still left of it, and what it really looked like "when it was new"?

The reality was far more wonderful than anything we are likely to have pictured to ourselves. Imagine a great wall, 8 feet thick and (including its parapet) nearly 20 feet high, faced with beautifully worked stone; see this wall stretching on for mile after mile, a distance of $73\frac{1}{4}$ miles, from the mouth of the Tyne to the Solway Firth; climbing high hills, descending into valleys, crossing now a broad river, or again a small stream; keeping always to the highest possible ridges of the hills; shirking no difficulties, but simply "carrying on" till its object is attained, and making a complete cleavage between north and south. Such was the wall itself when it was made; but also in its course it

linked together no less than 14 large forts; and there were built into it, as an integral part of its construction, 80 small forts or mile-castles and about 160 wall-turrets or watch-towers.

Thus we see that the wall was no bare monotonous line of masonry, but included 254 distinct fortified posts, large and small. Fourteen of these were forts built to accommodate 500 or 1,000 men, and contained streets, chapels, offices, colonnaded courts, barracks, officers' dwellings, granaries and workshops, each fort being surrounded by a little town containing the soldiers' families and the hangers-on of the garrison, with a well appointed bath-house as the centre of its social life.

The country through which this barrier runs is partly low-lying and fertile, partly wild and desolate. Lonely enough it is for the most part to-day, though once it was astir with the activities of the Roman legions who built the wall, and afterwards it resounded to the tramp of the auxiliaries who manned it. Soldiers from nearly every part of the then known world met along this narrow line. From the banks of the Rhine, the Danube and the Seine, from the shores of the sunny Adriatic and of the North Sea, and from the Spanish Peninsula, they came at the command of Rome to hold these outposts in the Northumbrian solitudes.

To follow the course of the wall on foot is to give yourself up entirely to its guidance, letting it lead you where it will; and, if at times all trace of it has disappeared, seeking the clue until you find it, and following on again. And it has much to reveal to you all along its course.

Not only can it still be traced over the greater part of its 73-mile course, with long stretches of solid masonry bearing witness to its past glory, but there are also splendid ruins of the forts, mile-castles and watch-towers. And this is in spite of the fact that the whole structure served as a convenient quarry to the neighbourhood for centuries. Indeed, a list of the churches, castles, peel-towers and farmhouses which have been built out of materials stolen from the wall leaves one wondering that any of it still remains to be seen. One writer after another has discussed the question of the wall, its history and its purpose, ever since 1587, when Camden, the antiquary, attacked the subject in his "Britannia"; but it is only within the last generation that through modern methods of digging it has been proved beyond a doubt



THE SEVEN NICHES OF THE UNROBING CHAMBER AT CILURNUM

The largest room of the bath-house at Chesters (Cilurnum) is one near the entrance, which is thought to be the unrobing and anointing chamber; it has a flagged floor, and along its west wall are seven round-arched stone niches, each round head being cut out of a single stone. Much discussion has arisen as to the use of these niches, and it is suggested that they were cupboards for the bathers to hang up their clothes. Nothing of the sort has been found elsewhere, and they make quite a striking feature seen from the far side of the North Tyne, towards which they face. Each niche is 3 feet high, 2 feet wide, 1 1/2 feet deep, and 8 inches above the level of the floor.



STREET OF BARRACKS IN THE FORT OF CILURNUM, WHERE SPANISH OUTPOSTS BRAVED A NORTHERN CLIME

Five long, narrow rooms on either side of the street make up this group of barracks; they open on to a portico supported by columns, some of the bases of which remain. It is probable that each room housed ten men of the Asturians who formed the garrison, and that there were six of such groups of ten rooms in this northern part of the fort; the Asturians were horse soldiers from Spain. A deep stone gutter runs down the middle of the street. When these rooms were excavated they were full of pottery, bones, oyster shells, and all kinds of rubbish. The walls were carefully restored in the winter of 1919-20, for, with exposure to the frosts and rains, they run the risk of disintegration if they are not kept in repair.



BARRACKS AT CILURNUM AND A ROMAN WINDOW

Another view of the barracks at Cilurnum is presented above; in the foreground are seen heaps of bones and other rubbish found in the chambers when they were opened. The lower picture shows part of a room in the bath-house at Cilurnum, the walls of which are preserved up to the window-level. This is very unusual; only one other example is known in England. Pieces of rather opaque glass were found on the ground outside. The room has an apsidal end; and the structure of the flues for heating it is seen to follow the semicircular plan of the walls, with a cross-flue up the centre.



ROMAN SENTRY-BOX AND A FAMOUS BRIDGE

The upper picture shows a wall-turret at Brunton, near Chollerford, the best-preserved specimen that has been uncovered. In the lower picture we see the eastern land-abutment of the Roman bridge which carried the Military Way across the North Tyne to Cilurnum. The great wall is seen joining the tower, just below the wooden fence. The massive stones of the abutment are linked by rods of iron, and in their midst lies embedded the pier of an earlier bridge, pointed at one end.

who was the builder, and what was the true relation between the different parts of it.

Besides the wall itself, with its mile-castles and turrets, and its associated forts, there is an earthwork known as the Vallum, running to the south of the forts, and consisting of a broad ditch between earthen mounds. This has always been the greatest puzzle of all to the antiquaries, but seems now to have yielded up its secret at last.

Briefly, the history of the wall and Vallum appears to be as follows. Agricola, that most famous figure of first century Britain, had been appointed governor of this turbulent province in the year A.D. 78. In the short space of seven years or less he was successful not only in overcoming rebellion in various parts of the island, and greatly extending the sphere of Roman rule, but also in making peace seem more attractive than war to the southern Britons, and inducing them to build dwellings and temples in the Roman style and to send their sons to Roman schools. They even learnt to take a pride in speaking Latin and wearing the toga. However, the newly conquered north still remained intractable, and in that region Agricola's forts, arranged in a network over the country, were as necessary when he left the island as they were when he first built them. These forts included a series across the Tyne-to-Solway isthmus, along the line of a road he had himself constructed, known since Saxon times as the Stanegate. It probably extended the whole 40 miles from Corbridge in the east to Carlisle in the west.

Some thirty years after Agricola's recall, there appears to have been a great native rising when Roman garrisons in the north were wiped out, and certain of the Agricolan forts completely overthrown. The frontiers were always more or less disturbed, so when the Emperor Hadrian, who succeeded in A.D. 117, visited the province to put into practice there his policy of consolidating rather than extending the frontiers of the Empire, it is not surprising that he "found many things to put right," as his biographer Spartian tells us.

He began at once on his new frontier scheme. It is even possible that the new line of forts along the frontier was already on the way to completion, in accordance with his instructions, before he actually arrived in the country. These forts were

mostly to the north of the Stanegate line; and in the hilly districts in the centre, where a bold ridge of basalt falls in rocky precipices facing northward, they were perched as high as possible on the ridge, so as to have the widest outlook over the enemy's country. Contemporaneously with the forts, or perhaps later, the Vallum was constructed as a civil boundary line under the protection of the forts, to mark the northern political limit of the Roman province of Britain.

Apparently, this original scheme of forts and Vallum did not prove wholly successful in its purpose of preventing raids and incursions from the north. Anyhow, it was thought necessary to enlarge some of the forts, so that the garrison could be increased. Even this did not solve the problem. The forts were five or six miles apart, and it would be almost impossible to keep such careful guard over these long distances as to prevent armed bands from slipping through in the dark, and making short work of any sentries who might be there to bar their way.

So the great wall came into being, as the last word in the defensive problem, linking up the forts, and including a mile-castle every seven furlongs and two wall-turrets between every pair of mile-castles. A fine military road between the wall and the Vallum, running from fort to fort with branches to the mile-castles and turrets, completed the scheme. The whole elaborate system of works was carried out in a very short space of time, certainly between the years A.D. 119 and A.D. 127, under the direction of Hadrian's proprætor, Aulus Platorius Nepos, whose name appears with that of his imperial master on slabs found at four different mile-castles on the wall.

Between eighty and ninety years later, the wall and its forts and turrets underwent a thorough reconstruction under the Emperor Septimius Severus. They had suffered much during the disturbances of the previous fifty years. The work of restoration was so extremely well done that the idea seems to have arisen that he was the actual builder of the wall, and certainly several ancient writers appear later to have given him the credit for it. That is why Camden, with many who followed him, calls the great wall "The Wall of Severus," and it was only towards the middle of the nineteenth century, when the Rev. John Hodgkinson, the historian of Northumberland, started a new theory, based on



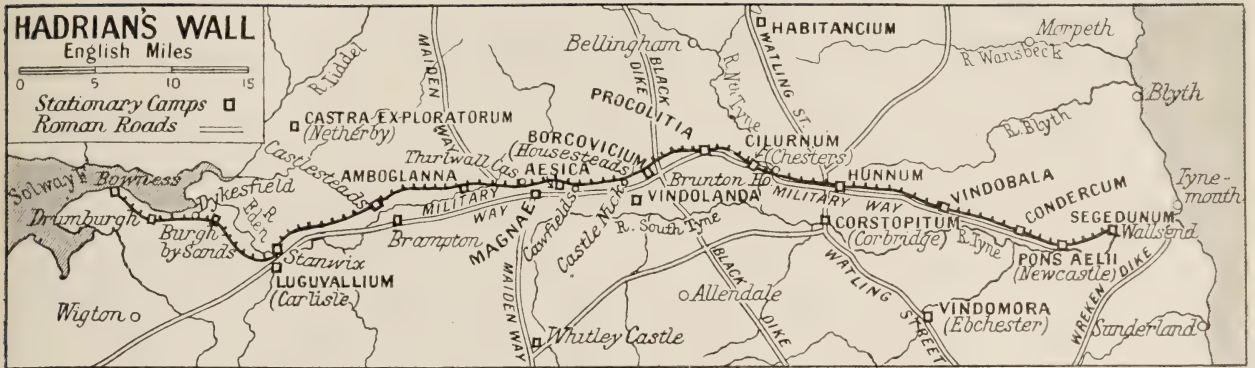
NORTH GATEWAY OF THE FORT OF BORCOVICIUM

This was the usual double gateway with twin semicircular arches, inner and outer. The central pier from which the inner arches spring is clearly seen, also the remains of the guard-chambers, one on either side. The purpose of the great stone tank in the foreground is unknown. The wall is seen running towards the plantation, and then taking its farther course over the hills, beyond, to the Seminschids Crags. An unusual feature is a gateway to be seen in the right centre of the photograph; elsewhere the only means of crossing from one side of the wall to the other was through a fort or mile-castle. A hollow in the ground near the angle of the wall, once taken for an amphitheatre, is now proved to be an ancient quarry.



GATEWAYS AT BORCOVICIUM AND CILURNUM

Upper picture: West gateway at Borcovicium, looking south-east. The central piers that supported the semicircle arches, the stone thresholds, and the position of the guard-chambers can all be noted. At the foot of the hillside on which the fort stands runs Wade's Road, and Grindon Lough is seen beyond. Lower picture: The east gateway of Cilurnum, with the guard-chambers on either side; the great wall joins the southern guard-chamber. Beyond the distant trees flows the North Tyne.



ROMAN MILESTONE THAT HAS WEATHERED THE STORMS OF 1,840 YEARS

On one of the roads made by Agricola about 80 A.D. stands a milestone 5 feet high. The road has been known since Saxon times as the Stanegate; it probably ran all the forty miles from Corbridge to Carlisle. Other milestones, found near the road, have been placed in the museums; this is the only one still standing. A portion of the Stanegate can be seen in the middle distance, with the mound of the Fort of Vindolanda rising above it on the left.



HOW ROMANS OF RANK KEPT WARM IN THE WINTER DAYS

Careful arrangements were always made by the Romans for heating their principal houses, even in such outlying posts as the forts of the great wall. The commandant's house at Cilurnum was heated by the hypocaustal system in the usual way, that is, by forcing hot air under the floors and along flues in the walls. For this purpose the floors were supported on pillars, as here shown. Those nearest the furnace were of tiles, mortared together; those farther away were stone columns broken short. All bear marks of fire.

the study of inscriptions, that Hadrian began to come into his own. Not for another seventy years was his claim fully established; and then modern methods of digging, and observation of floor-levels, with coin and pottery evidence, proved him to have been responsible for forts, stone wall and Vallum alike. It is impossible in a short article to give details of the evidence, but it is clear and irrefutable.

We have seen that under the term "Hadrian's Wall" are included: 1. A series of frontier forts, built of stone; 2. An earthwork, known as the Vallum; 3. A massive stone wall, with mile-castles and watch-towers. We will now consider these in the order in which they were constructed.

1. THE FORTS

Seventeen forts are now generally included in the list of those along the line of the wall, but of these only fourteen were afterwards linked up into one structure with the wall. Of the remaining three, two lie to the south of both wall and Vallum on the Stanegate, and were, no doubt, Agricolan sites, and the third (at Castlesteads in Cumberland) lies between the wall and the Vallum.

The names of the forts, with the Roman equivalents where known, are as follows, from east to west:

1. Wallsend	Segedunum
2. Newcastle	Pons Ælii
3. Benwell Hill	Condercum
4. Rudchester	Vindobala
5. Halton Chesters	Hunnum
6. Chesters	Cilurnum
7. Carrawburgh	Procolitia
8. Housesteads	Borcovicium
9. Chesterholm	Vindolanda
10. Great Chesters	Æsica
11. Carvoran	Magnæ
12. Birdoswald	Amboglanna
13. Castlesteads	
14. Stanwix	
15. Burgh-by-Sands	
16. Drumburgh	
17. Bowness	

Of these, Cilurnum, Borcovicium, Æsica and Amboglanna offer at present the best opportunities for studying on the spot the construction and plan of the forts, but the position of a good many more can be traced, even by the ordinary tourist. The exact site of the fort at Burgh is one of the most recent discoveries along the wall line, made in the spring of 1922.

The area enclosed within the fort walls varies, some being four or five acres in extent, others about half that size. All are parallelograms in plan, with rounded corners, are enclosed by a wall at least five feet thick, surrounded by a ditch, and had gateways north, south, east and west—double-portalled gateways with round arches, closed by two-leaved wooden doors swinging on pivots shod with iron. There was a guard-chamber on either side of each main gateway, and turrets were placed round the walls. In the centre stood the headquarters building, containing the “*sacellum*” or Chapel of the Standards, and office rooms. The commandant’s house at Cilurnum shows beautiful stone mouldings outside and painted plaster walls inside, and has elaborate private baths.

At Cilurnum and Borcovicium the stone thresholds of gateways are grooved by the constant passage of chariot wheels, the width between the wheels being 4 feet 6½ inches, just the same as between the wheel-ruts in the streets of Pompeii. The best preserved building on the wall line is the bath-house at Chesters (Cilurnum) on the North Tyne. One chamber still stands 9½ feet high, with twenty-three courses of stones. A large flagged chamber, probably the unrobing room, contains seven round-arched stone niches, whose purpose is not known, but it is suggested that they were cupboards for the bathers’ clothes. Another room shows part of a splayed window-opening, and windowglass was found underneath. It is very rarely that Roman buildings are found to reach the window level. This building is one of the best preserved in England, having been covered up and protected by the soil that was washed down towards the river.

2. THE VALLUM

The Vallum is now recognised as a civil boundary, or “*lines*,” consisting of a flat-bottomed ditch, with an earthen mound on either side of the ditch at a distance of 24 feet away. It extends



ONE OF THE BEST PRESERVED ROMAN BUILDINGS IN ENGLAND

The bath-house at Chesters lies quite outside the walls of the Fort of Cilurnum, on the edge of the North Tyne. It was completely covered by soil washed down towards the river, which accounts for its excellent preservation; as the photograph shows, the tops of the walls are at the present level of the ground. The view is taken looking north; in the foreground are seen the flues that crossed under the floor and served to heat one of the hotter rooms—perhaps the "calidarium."



THE GREAT WALL DESCENDING LIMESTONE BANK

At this point the wall is about five feet high, and runs through fields parallel to Wade's Road, the direct route from Newcastle to Carlisle. In early summer this strip of wall is a blaze of gold from the gorse which grows upon it. The photograph shows well the character of the facing-stones, though they have become loosened and irregular. The site of a mile-castle which has never been excavated is located on the top of the hill in the distance, just on the left of Wade's Road.



PRINCIPIA OR HEADQUARTERS BUILDING AT BORCOVICIUM

In the foreground is the beautiful base of a column, the first of a row of six which supported the portico of an open court. On the right was a row of five rooms, the central one being the "sacellum," or Chapel of the Standards. Another open court stood on the left, surrounded on three sides by a portico: the entrance to the Principia was in the east wall of this court. This view was taken looking southward, across the valley of the Tyne.



THE GREAT WALL ON PEEL CRAG, 900 FEET ABOVE SEA LEVEL

Shown here is the southern aspect of the wall where the upper facing-stones have been restored; the northern face has not been touched. Repairs in the wall were necessary to keep sheep from falling down the crag, and it was therefore thought best to rebuild it carefully, as nearly as possible in the Roman manner. The photograph shows clearly the barren "wastes" on the north of the wall; it was taken soon after the rebuilding, when heaps of stones were still lying about. These are now overgrown with grass.



ROME AGAINST BARBARISM: AN ATTACK ON BORCOVICIUM

In this picture of warfare on the wall, by Mr. Robert Spence, the well-known artist, we see the north gateway of the Fort of Borcovicum being forced by the Caledonians, who have smashed down the wooden doors and set fire to the arches. The struggle round the gate and the details of buildings and background are all rendered with true and vivid imagination, based on a scholarly knowledge of facts. The wall is seen climbing the hills beyond the fort and following the crest of Sewingshields Crag.



THE MOST ROMANTICALLY SITUATED MILE-CASTLE ON THE GREAT WALL

Known as Castle Nick mile-castle, this fort lies in a narrow depression, or "nick," in the hills; the nick has been named after it, "Castle Nick," and then the castle in its turn has been named after the nick. Only the north gateway is visible in the picture. The south gateway is exactly opposite, at a distance of 62 feet; the walls still stand 5 feet high. The sheet of water is Crag Lough, with Hot Bank farmhouse on the side of the hill beyond.

for 66 miles, from Newcastle to Dykesfield, thus missing the full length of the wall by $7\frac{1}{4}$ miles.

The late Professor Haverfield, assisted by Mr. and Mrs. T. H. Hodgson, spent years of patient work in excavating the Vallum, locating it where it was lost, discovering its true purpose, and ascertaining that it is not earlier in origin than the forts, because it bends round to the south to avoid them.

Mr. F. Gerald Simpson and Dr. R. C. Shaw have recently found causeways crossing the Vallum where gaps have been made in the mounds; and they infer that the ditch was filled up and the mounds were lowered to facilitate the carrying of building materials across the Vallum when the wall was being built. When the wall was finished, some of the causeways were cleared out, and the earth thrown up on the edge of the ditch to form an additional mound, the presence of which had not been convincingly explained by anyone before.

3. THE GREAT WALL

The great wall is built of concrete, of immense strength, and faced with stone blocks very regular in size. A V-shaped ditch, 10 to 15 feet deep, and 35 to 40 feet wide, defended it on its northern side, and, where necessary, was hewn out of the hardest stone. A very remarkable instance of this occurs on Limestone Bank, near Chesters, where the ditches of both wall and Vallum are hewn out of basalt, great boulders of which lie scattered about in confusion. The wall forms the north wall of the mile-castles, whose east and west walls are bonded into it. They measure about 60 feet by 50 feet. Very good specimens are to be seen uncovered in the hilly regions at Housesteads, Cawfields and Castle Nick.

The wall-turrets are sentry boxes, 12 feet by 10 feet, recessed into the wall. Some were destroyed by Severus when he repaired the wall. Excavation of turrets by the late Mr. J. P. Gibson and Mr. F. G. Simpson has yielded much valuable evidence, and thirty are now awaiting their turn to be opened. The best examples of wall-turrets which can now be seen are at Brunton, Black Carts near Chesters, and Mucklebank, on the Nine Nicks of Thirlwall.

One of the most remarkable features along the line of the

wall is the Roman bridge which continued the barrier over the North Tyne, near Cilurnum. There are traces of two bridges; the later one was twice as wide as the earlier, wide enough to carry the military road of Hadrian. Both bridges rested on stone piers in the bed of the stream, but the later one had very massive land-abutments which encroached on the stream, and made the water-passage much shorter: and it is suggested that this later bridge was built at the same time as the great wall, to carry out the idea of making an impassable barrier against raiders of every sort. Portcullises may have filled the water-openings when the stream was running low.

In a very illuminating article on "The Purpose of the Roman Wall," in the *Vasculum* of October, 1921, Mr. R. G. Collingwood shows that the wall was never designed to be itself a fighting-ground; its object was to provide an elevated sentry-walk which should at the same time be an obstacle to unauthorised persons who wished to cross the boundary of the Roman province. It was, in effect, one continuous watch-tower, 73 miles long. Mr. Collingwood also shows that the Roman auxiliary of the period when the wall was built, and for 200 years later, carried weapons (two throwing-spears and a short-sword) wholly unsuitable for warfare from the top of a wall 12 to 15 feet high, and that the width of the rampart walk, 3 or 4 feet, was much too narrow for anything but sentry-purposes; also that, for the same reason, catapults and ballistæ could never have been used except at the forts and mile-castles.

Rudyard Kipling's vivid picture of fighting on the wall in "Puck of Pook's Hill," refers to a late period in the Roman occupation, when the bow and arrow had begun to be used; but in considering the purpose of the wall, it is necessary to take into account only the conditions which prevailed at the time when it was built.

Fresh excavations are constantly being carried on along the line of the wall, as opportunity offers, and thus new facts are being gleaned. It may be that in a few more years a whole flood of further light will have been thrown on the subject; but the position now, contrasted with the doubt and uncertainty that existed as to its origin and history only a comparatively short time ago, is like broad daylight following a murky night.

Even the most ardent student of archæology must feel that the beauty and variety of the country through which the wall runs adds much to its attractiveness. A walk from end to end takes us, it is true, through two large cities, Newcastle and Carlisle, but it also leads through peaceful pastoral regions; it brings us along rocky ridges, whence we look southward across the green valley of the Tyne and northward over the vast moorland wastes, flecked with floating cloud-shadows and surrounded by a girdle of hills. Here, indeed, is the true wall country, where we feel the spring of the mountain turf under our feet, where the air is filled with the scent of the wild thyme, and in our ears is the musical cry of the curlew circling overhead.

The ruins themselves, on these lonely heights, rival in stateliness and in extent the ancient monuments in Rome herself; and as they stand in their stubborn endurance, having defied for so long the attacks of man and of the elements, they speak to us of the strength of character, the hardihood, the love of law and order, which characterised Rome at her best, and made her the worthy guardian of civilisation against all the forces of reaction.

THE WONDER CITIES. XVIII
BYZANTIUM IN THE TIME OF
JUSTINIAN

By J. B. BURY, M.A., Litt.D., LL.D.

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Regius Professor of Modern History, Cambridge University; author of "History of the Eastern Roman Empire," etc.

THE Greek town of Byzantium was nearly a thousand years old when it was chosen by Constantine the Great to be a second capital of the Roman Empire, and was renamed after him Constantinopolis (Greek, Konstantinoupolis), "Constantine's city" (A.D. 330). The choice was a wise one, as the subsequent course of events showed; Imperial Constantinople was to have a longer history than Imperial Rome.

The city is situated on a hilly promontory just where the Bosphorus, which flows from north to south, enters the Sea of Marmora. On three sides it is bounded by water, on the south and east by the Marmora, on the north by its harbour, the Golden Horn. It is this natural harbour which makes the situation of Constantinople so unique, and which made the fortune of the city. Without the Golden Horn, which is capable of accommodating about 1,200 vessels, she could never have become, as she was for centuries, the first commercial city of the world. An enemy who had not a navy at his command could attack her only on one side, and this western side was protected by an elaborate system of fortifications running from the Marmora to the Golden Horn. These walls were originally built early in the fifth century, and their ruins are to-day perhaps the most striking monument of the past greatness of the city. The structure consisted of an inner wall, about 14 feet thick; a thin and lower outer wall, built for the most part in arches; a terrace of 18 to 20 yards between the two walls; outside the outer wall an embankment, and outside it again a broad ditch divided by low dams. Each of the two walls was strengthened by 96 towers, 60 yards apart. The

line of these early fortifications, which are known as the Theodosian walls, because they were built in the reign of Theodosius II. (A.D. 408-450), did not reach as far as the Golden Horn, and we do not know how exactly the defence of the north-western quarter of the city—the quarter known as Blachernæ—was provided for originally, but at a later period the Theodosian line was extended northward to the Horn to meet the sea-wall. For the three watergirt sides of the city were also secured from attack by walls.

There were five principal gates in the Theodosian wall, of which the southernmost was known as the Golden Gate, constructed of marble and presenting the general type of a Roman triumphal arch. Through it the emperors made their public entries into the city, and the long line of streets through which they rode to reach the place is exactly the same as that which still leads from the Golden Gate to the Seraglio. This street, or succession of streets, is about four miles in length. It passes through the Forum of Arcadius, in which the pedestal of the great column of that emperor may still be seen; through the Forum of Theodosius the Great, whose column was still standing in the 16th century; through the oval Forum of Constantine in the middle of which was a high porphyry pillar supporting a statue of Constantine the Great in the guise of Apollo, crowned by a halo of seven rays. Part of the pillar still stands in its old place, blackened by fire, and known as the Burnt Column. From here it was not far to the Angustium, the social centre of the city, round which were grouped the most important public buildings—the Hippodrome, the Imperial Palace, the Senate House, the Church of S. Sophia and the Baths of Zeuxippus.

Constantinople was as unlike Rome in its site and topographical features as it could well be, but as it was to be a second Rome it was forced to resemble the old capital in some superficial points. Like Rome, it was to be a city of seven hills, and seven hills were discovered on the site. Some of these are well marked. S. Sophia stands on the top of the first hill which rises from the shore on the east side; the Forum of Constantine is on the top of the second; and the mosque of Mahomed the Conqueror now crowns the fourth hill. Like Rome, it was divided into fourteen regions, or wards, and as one of the Roman Regions



EERIE MAGNIFICENCE OF YERI BATAN SARAI

Surpassing even Bin bir Derek is the other reservoir, known as "The Underground Palace"; it is still used to store the city's water and visitors testify to the weird splendour of its many arches. There are three hundred and thirty-six marble columns, arranged in parallel rows, and the impression given by them is that of a partially submerged cathedral.



JUSTINIAN'S CLOISTERED RESERVOIR

Called by the Turks the "Hall of a Thousand and One Columns," these magnificent subterranean cloisters were built by the Emperor Justinian to collect for his citizens the water brought by aqueducts from the hills of Thrace. There are over two hundred columns that support the myriad-domed roof.



Photo by Donald McLeish.

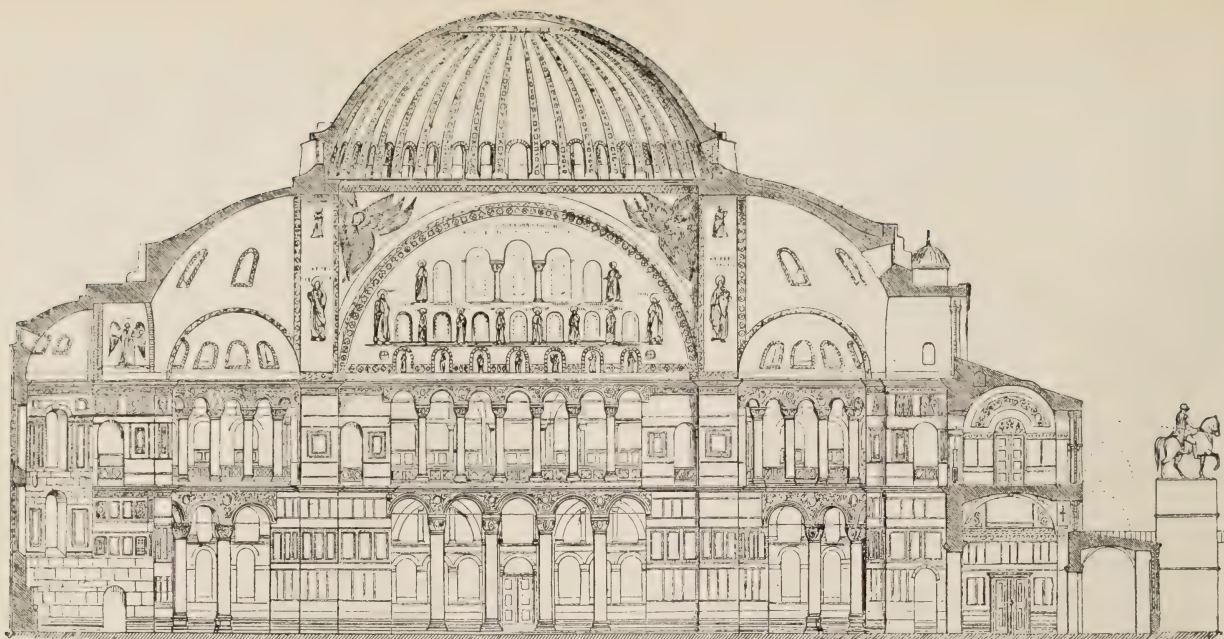
FROM AN OLD ROMAN QUADRIGA: HORSES WHOSE HISTORY HAS BEEN EVENTFUL

Now adorning the main façade of S. Mark's, Venice, these beautiful animals once stood over the Triumphal Arch of Nero in Rome. Later they were transferred to Trajan's Arch, and afterwards they were taken to Byzantium by Constantine. In 1204 the Doge Dandolo brought them to Venice, but from Venice they were looted by Napoleon to grace the beautiful arch in the Place du Carrousel in Paris. They were returned to Venice, however, in 1815. Their place there being a conspicuous one for Austrian aviators during the Great War, they were temporarily stored below ground; shortly afterwards, they were set up again.



ONCE A "LOVELY TABERNACLE" OF CHRISTIANITY—NOW A MOSQUE OF ISLAM

Massive, strong, yet graceful, is the exterior of the mosque of S. Sophia. Looked at from this point it would seem to be a terraced heap of dome upon dome. The original central cupola of Anthemius' edifice fell in 555, and was replaced by this higher, stronger one. It was found, too, while these repairs were in progress, that the question of lighting the interior could be solved by the introduction into the base of the dome of these forty windows, which give an intangible lightness to the whole superstructure.



After a section by Fergusson.

S. SOPHIA: CROWNING ACHIEVEMENT OF BYZANTINE ARCHITECTURE

Planned by Anthemius in the shape of a Greek cross of four equal arms S. Sophia was built between 532 and 537 by Justinian. Its amazing dome, 110 feet in diameter, is supported on a square of four arches, and not, as is usual, on a hexagon or octagon. Mosaics on a gold ground adorn the walls and vault above, but lest Allah's faithful should be offended by these heretical representations, the Mahomedan Turks have covered them with a decoration of stucco. The scale of this section is 50 feet to the inch.



ENTRANCE TO THE PROPHET'S MOST GLORIOUS SHRINE, THE QUEEN OF OLD STAMBOUL

When, in 537, Justinian gazed on the completed temple of his God, he is said to have exclaimed: "O Solomon, I have surpassed thee"; and, struck with the idea, caused a statue of the chagrined Solomon to be raised outside his church. Splendour incredible certainly reigned inside, but the exterior had little of the ornate in its decoration; one would scarcely say that its beauty is enhanced by these supporting buttresses built by the later Moslems, who also added the minarets of which one is seen on the extreme right.



QUEENLY CAPITAL OF JUSTINIAN'S EMPIRE, CONSTANTINOPLE AS IT IS

Upper photograph: Above the close-packed houses of Galata (the business quarter) and Pera (the fashionable European quarter) rises conspicuous the ancient Genoese Tower used for giving fire alarms. Spanning the Golden Horn is the modern Galata Bridge. Lower photograph: The opposite side seen from Pera. In the left distance are the domes and the minarets of S. Sophia, and on the right the Turkish-built mosque of Solyman. Occupying the centre of the background is the Palace of the Sultan, massive hub of the ancient quarter of the city, Stamboul. Ships of the greatest size can safely anchor in the Golden Horn, one of the finest natural harbours in the world.



Photos by Alinari.

JUSTINIAN, PATRON OF BYZANTINE ART, AND HIS EMPRESS THEODORA

Since the early Christian pictorial decorations of Byzantium have all been obliterated, as being heretical, by the Moslems, one has to look in the buildings of the West for examples of such work. Ravenna was the chief centre, and was visited in the sixth century by artists from Byzantium who worked these mosaics. Above is the dancing-girl empress Theodora, surrounded by her suite, and below is the Emperor Justinian, her husband, with S. Maximianus on his left prominent in his entourage.

lay beyond the Tiber, so one of the Constantinopolitan regions lay beyond the Golden Horn, corresponding to Galata. As Rome had a "secret" religious name, "Flora," Constantinople had a similar name, "Anthusa," with the same meaning. Constantine the Great chose for the Imperial Palace a site on the upper slopes of the First Hill, adjoining the Hippodrome, just as the Imperial Palace at Rome on the Palatine Hill was contiguous to the Circus Maximus in the depression below it.

The Hippodrome was planned and partly built by the Emperor Septimius Severus more than a hundred years before Constantine's reign. The Circus Maximus served as its model. But whereas the Roman circus was built on the level ground between the Palatine and Aventine hills, there was not enough level ground for a racecourse available anywhere in old Byzantium, and Severus had to build it partly on ground levelled near the summit of the first hill and partly in the air. In fact, the southern portion of the racecourse hung supported by massive vaulted structures, which we can inspect if we go down to the foot of the hill. The Hippodrome is now an open place called the Atmeidan (Turkish for Hippodrome). At the northern end (the side towards S. Sophia) was the Kathisma, a small "palace" appropriated to the use of the emperor when he presided at the chariot races. The seats of the spectators ran down both sides of the course and round the semicircle which terminated the southern end. It has been calculated that the length of the Hippodrome was over 400 yards and the width between 100 and 200. If you walk about the Atmeidan to-day, you will find no traces of walls or seats or of the Kathisma, but you will see three remarkable monuments, which are still in the same position as in the days of Justinian, and show us the exact orientation of the racecourse. Down the middle of a Roman racecourse there always ran a long, low wall, at the ends of which were the goals round which the chariots had to turn—generally they had to make seven circuits. This wall was called the "spina," or backbone, and on it were placed at intervals statues and monuments. Three of these have survived. (1) The Egyptian obelisk (of Thothmes III., 15th century B.C.) which is in the middle of the Atmeidan, was brought to Constantinople from Heliopolis by the Emperor Theodosius the Great, and was placed by him at the central point of the

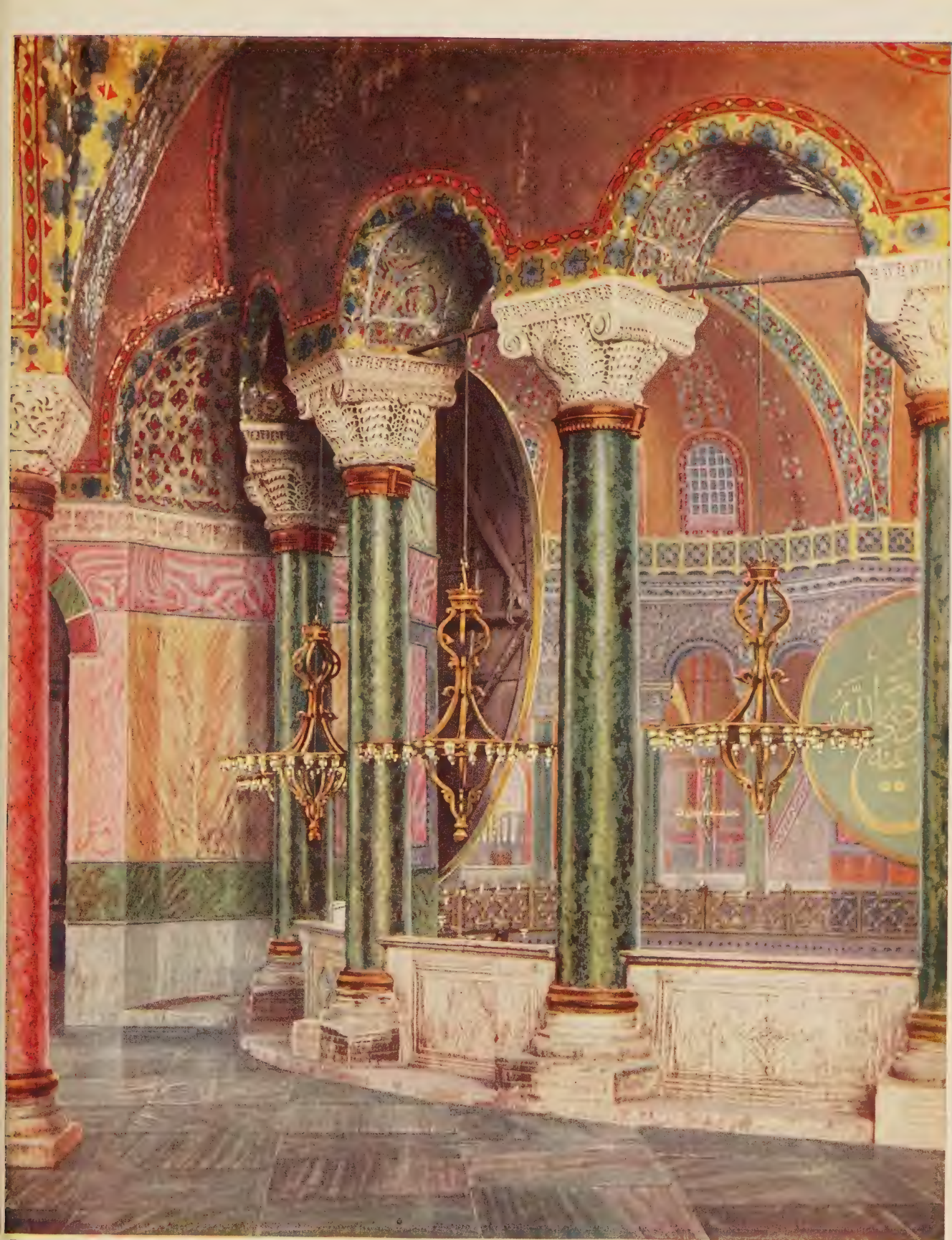
spina, on a pedestal on which he and his sons are represented in the act of witnessing chariot races. (2) Farther south is a work of art, not so old and not so large, but more interesting to Europeans—the bronze pillar made of three serpents which used to support the gold tripod that the Greeks dedicated to Apollo at Delphi in thanksgiving for the decisive victory which they won at Plataea over the Persians in 479 B.C. Constantine the Great rifled Greece for works of art to adorn his new capital, and this was one of the treasures he carried off. (3) Farther south still are the remains of a column of masonry which was once covered with glittering plates of bronze, but we do not know what it represented.

There is another monument which used once to adorn the Hippodrome (on the façade of the Kathisma) but which we must now go to Venice to see, the Four Horses attributed to the Greek sculptor Lysippus, in gilt bronze, which were carried off from Constantinople in A.D. 1205, and are now in front of the cathedral of San Marco.

All the inhabitants of Constantinople from the emperor down were as interested in the chariot races, the horses and the jockeys, as most Englishmen are in the Derby, and were far more ardent partisans. The leading charioteers were popular idols, and we can still see a monument in honour of one of them, Porphyrius, whose skilful driving used to bewitch the Byzantine spectators in the early years of the sixth century. It is to be found in the courtyard of the church of S. Irene.

The Hippodrome had a political importance which never belonged to the Roman circus. It was constantly the scene of riots and political demonstrations. When a new emperor came to the throne, it was here that the populace acclaimed him. A modern French writer has pregnantly observed, with considerable but perhaps allowable exaggeration, that the spina of the Hippodrome was the axis of the whole Byzantine world.

Justinian ascended the imperial throne 200 years after the foundation of Constantinople, and in his reign the city reached the height of its power and splendour. It was now not the second, but the sole capital of the empire; for all Western Europe and North Africa had been lost to the Germans; Italy and Rome were in the hands of Goths. Justinian did indeed expel the bar-



From a photograph specially coloured for "Wonders of the Past."

ZENITH OF EARLY CHRISTIAN ARCHITECTURE: S. SOPHIA

The richly coloured interior of S. Sophia is a wonderful sight; her soaring ~~from the~~ ^{from the} ~~and vast~~ ^{and vast} recesses of her mighty transepts, glorious with marble and decorations from every civilisation round the Mediterranean, are a veritable feast to the eye. From the gallery surrounding the dome we look up into one of the apses which lie on the east and west sides. Notice the green wooden shields—the back of one is seen in the centre—bearing the names of the four companions of the Prophet.

barians from North Africa and Italy and the islands of the Western Mediterranean, but Rome, which had been reduced to desolation, did not recapture her old place; she was a mere provincial town so long as she remained within the empire. Constantinople was to be, for many hundred years, the greatest city in Europe both politically and commercially.

Justinian was so powerful and the range of his activities was so wide that he had a great influence on subsequent history—first of all by his conquests; then by his large reorganisation and simplification of Roman law; thirdly, by his ecclesiastical policy—he was a subtle theologian in an age of subtle theologians. His wife was the famous Theodora, who helped him in many ways and was more feared than he was—the most baffling and the most elusive of all the Roman Empresses.

Next to theology, this Emperor's principal hobby was building, and no considerations of expense prevented him from indulging in it. The public buildings of Constantinople had been fine but probably not very wonderful when he came to the throne; they were very wonderful and worth coming a long way to see when he died. The opportunity for rebuilding the city was given to him by an occurrence which very nearly cost him his throne and life. A revolt broke out in the city; he was besieged in his palace, and the case seemed so desperate that he decided to flee. Theodora's courage saved the situation, and the rebellion was put down. But during the course of the disturbances there had been great conflagrations, and nearly all the most important buildings had been burnt down to the ground.

Thus the calamity, sweeping the ground clear, enabled the sovereign to rebuild the city according to his own magnificent ideas of what an Imperial capital should be. Circumstances fortunately concurred. "Byzantine" art had now attained its maturity, and both architects and pictorial artists were able to achieve more brilliant effects than were possible a hundred years before. Justinian's age is the great age of Byzantine art. And not only was it a great age for average artistic skill, but it produced one of the very greatest architects that the world has ever seen, Anthemius of Tralles.

S. Sophia was one of the buildings which had been burnt down, and Justinian entrusted to Anthemius the task of build-

ing a new church, which should be one of the wonders of the world. It was begun in A.D. 532, and completed in A.D. 537. This speed, which might satisfy even transatlantic ideals of expedition, may have been greatly due to the personal interest of the emperor, who was constantly on the scene and would often distribute gratuities to the workmen in addition to their regular pay.

The plan of the church is a Greek cross, with four equal arms, and the unique feature of its architecture is that the central dome, which is 100 feet in diameter, is placed over the square space which lies between these four arms. As a rule, great domes are placed over round spaces, for instance the Pantheon; or octagonal spaces, for instance the Church of Little S. Sophia. I do not know any other instance of the dome rising over a square space. It was a very bold experiment. At each corner of the centre space (100 feet square) a massive pier was constructed, and on the four piers rested the arches and pendentives which sustained the dome. The dome rose to the height of 180 feet and was pierced by fifty windows. It was made of very light material. But Anthemius had not allowed a sufficient margin of safety, and twenty years later it crashed down. The misfortune was not irremediable. Anthemius was dead, but another architect erected a new and somewhat higher cupola, and by various architectural readjustments secured a stability which has lasted for 1,360 years.

Seen near at hand, the dimensions and dominating position of S. Sophia are not realised. You must go to a distance, say across the Marmora to the Asiatic shore, to appreciate its magnitude. Its exterior is very plain, and that is the case with most Byzantine churches, in contrast with the amazing richness of the decoration of the interior. Although the mosaic pictures are now covered with Turkish whitewash, so that the eyes of the faithful Mahomedans may not be offended by Christian scenes and symbols, modern enthusiasts are able to describe S. Sophia as one of the most beautiful buildings in the world, and to understand the raptures which it excited in the contemporaries of Justinian. The truth is that the mosaics were not as essential a part of its decoration as of most Byzantine churches. Its beauty lay in the marbles of many colours which covered the floor and walls.

The artists who designed the details were skilful in blending colours; they must have studied carefully the effects of the lighting, and seen how the gold with which the roof was covered would be reflected into the marbles below. A writer who saw the church soon after it was built says that the general impression of the interior was that of a great meadow carpeted with flowers.

The marbles were imported from great distances—from Egypt, Numidia, Asia Minor, Greece. A very full description of the church was written by a poet named Paul, who held an official position in the palace, and it was recited in the emperor's presence. It is the most successful—perhaps the only successful—poem on such a subject as the details of an actual building that was ever composed, and is well worth reading in the excellent prose translation which will be found in the book on "*Sancta Sophia*," by Messrs. Lethaby and Swainson. Here is Paul's glowing and rapturous description of the marbles:

Who, even in the measures of Homer, shall sing the marble pastures gathered on the lofty walls and spreading pavement of the mighty church? These the iron with its metal tooth has gnawed—the fresh green from Carystus, and the many coloured from the Phrygian range in which a rosy blush mingles with white or shines bright with flowers of deep red and silver. There is a wealth of porphyry, too, powdered with bright stars, that has once laden the river boat on the broad Nile. You would see an emerald green from Sparta, and the glittering marble with wavy veins which the tool has worked in the deep bosom of the Jassian hills, showing slanting streaks blood-red and livid white. From the Lydian creek came the bright stone mingled with streaks of red. Stone, too, there is that the Libyan sun, warming with his golden light, has nurtured in the deep-bosomed clefts of the hills of the Moors, of crocus colour glittering like gold, and the products of Celtic crags, a wealth of crystals, like milk poured here and there on a flesh of glittering black.

The curves of the arches, ornamented with delicately sculptured acanthus and vine tendrils, and the beautifully wrought capitals of white marble, brought from Proconnesus (the island in the Sea of Marmora), mark the highest point to which the decorative architecture of the Byzantine style ever attained.

Another church which was rebuilt by Justinian after the conflagration and survives to the present day is *S. Irene*, a little to the north of *S. Sophia*. It is also a domed building but of the

basilica form, and is the only church at Constantinople which the Turks did not turn into a mosque. They have used it as a museum or store of ancient firearms, and have kept it jealously closed. It is difficult to view, for in order to visit it a special permit has to be obtained from the Sultan.

None of the other buildings which were burnt down and built in greater splendour by Justinian, has withstood the forces of destruction. No traces of the Senate House or the Baths of Zeuxippus or the great Palace remain. Of sacred buildings, the most important of those erected by Justinian, next to S. Sophia, was the Church of the holy Apostles, situated in the middle of the city, on the summit of the central hill. It had been originally built by Constantine as a basilica, with a round edifice adjoining it to be the imperial mausoleum. It had suffered injury from earthquakes and Justinian decided to rebuild it on a different plan, as a Greek cross with four equal arms and five domes. One of the worst acts of the Turkish vandalism was the complete destruction of this monument, the sepulchral church of the emperors, and the erection of the great mosque of Mahomed the Conqueror on its site. Not a trace of it remains. But very full descriptions of it are preserved, and the Church of S. Mark at Venice, which was built on the same plan, gives a good idea of what it must have been like.

We have, however, a small and interesting church in very good preservation which was built by Justinian and Theodora at the very beginning of their reign, the church dedicated to SS. Sergius and Bacchus, which the Turks turned into a mosque and call "Little S. Sophia," situated close to the shore of the Marmora, under the hill on which S. Sophia stands. It is an octagonal church with a dome, and it is by no means improbable that the skilful architect who planned it was Anthemius himself. In the inscription on the frieze that runs round the octagon can still be read the names of the Emperor and Empress.

This church stands quite close to the ruined building which is known as the "Palace of Hormisdas," and also as the "House of Justinian," because Justinian resided there before he ascended the throne. It was close to the western boundary of the Imperial Palace, and after his accession Justinian extended the grounds so as to take it in.



HIPPODROME OF CONSTANTINOPLE, WHERE PUBLIC FEELING ONCE RAN HIGH

Known now as the Atmeidan, and adorned with spoil from ancient Egypt in the Obelisk of Thothmes III., the Hippodrome is contiguous with S. Sophia, which is seen in the background. It was planned by Septimius Severus some three centuries before Justinian, and was the scene of chariot races, on which partisan enthusiasm ran high. In Justinian's time this intense feeling rose to a climax in the Nika riots, in 532, and it was Theodora's courage and calmness that saved a very awkward situation.



PEDESTAL OF HIPPODROME OBELISK

Sculptured in bas-relief are Theodosius the Great (379-395 A.D.) and Galla, his wife, with their sons, presiding over the races at the Hippodrome. The pedestal supports the Obelisk of Thothmes III. (fifteenth century B.C.) brought to Constantinople by Theodosius; it was overthrown by earthquake during his reign, and the Latin inscription on the right refers to its subsequent re-erection by the orders of the Emperor.



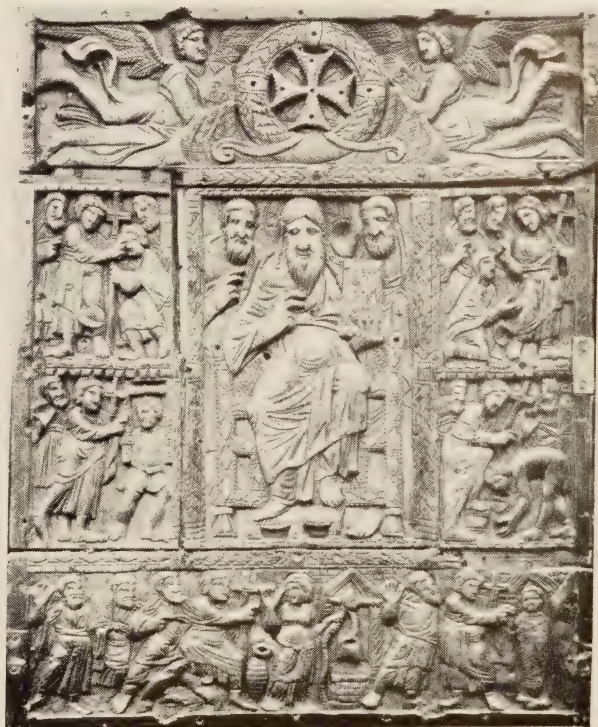
OLDEST RELIC IN BYZANTIUM: THE FAMOUS COLUMN OF THREE SERPENTS

Shaped in graceful bronze to represent three entwined serpents, this column stood just south of the Obelisk. Little of it now remains, but it once rose high to its capital, a tripod of shining gold. It was first dedicated to the god Apollo by the Greeks in token of gratitude to him for granting them victory over the hosts of Persia under Mardonius in 479 B.C. From its original site at Delphi it was carried off by Constantine to adorn his own city on the shores of the Golden Horn.



THE FIRE-BLACKENED PILLAR

In the oval Forum of Constantinople stands this ruined column. During the heyday of Byzantine splendour it supported a statue of the Emperor Constantine crowned with a halo of seven rays; now it is but a sad relic of an ancient conflagration, and very pathetic in its scorched desolation.



LEGEND WROUGHT INTO OLD IVORY

The working of ivory was one of the supremely characteristic Byzantine arts, and the precious material was used with gold and enamel in architectural decoration; but this plaque, dating from the fifth century, was the cover of a copy of the Scripture.



SUPERB ARCHITECTURE THAT WITHSTOOD GOTH AND ARAB, PERSIAN AND BULGAR

Upper photograph: The ruins of the turreted walls of Theodosius II, who reigned after Theodosius the Great, from 408 till 450, built to protect the inland side of the town. They ran from the Sea of Marmora to the Golden Horn, being joined there by the seawalls of Constantine. Lower picture: A superb ruin on the sea-wall of Constantine, the so-called Palace of the Emperor Justinian. Notice the ornamental windows and the large stones built into the lower courses of the wall. Fair indeed must have been the white sails silhouetted against the grim battlemented turrets as the galleons rode on the waters of the Bosphorus.



BUILT UNDER THE WHIP OF MAHOMED THE CONQUEROR: RUMELI HISSAR

Here, where the Bosphorus closes to its narrowest point and the shore of Europe all but touches Asia, stands this fortress castle of Rumeli Hissar, with its surrounding battlemented outworks. It was built by forced labour by Mahomed II. in five months from materials from neighbouring buildings, as a preliminary to his siege of the City, and the plan is the monogram of the Prophet, Mahomed's namesake. To-day Rumeli Hissar is occupied by professors and students of a modern American college. Many and paradoxical have been the vicissitudes of this Rome of the East, for, in S. Sophia, Islam has supplanted Christianity, and in Rumeli Hissar the people of a Christian nation occupy the fort of a mahomedan prince.



"PALACE OF PORPHYROGENITUS" FROM WHOSE BALCONY EMPERORS WERE PROCLAIMED

Considered by almost all standard authorities to be the most perfect extant example of Byzantine civil architecture, this magnificent ruin stands at the point where the Theodosian wall of the town ends, and those of the later Heracilus and Leo begin. Specially noteworthy are the solid construction of the walls and the gracefully curving window-arches. "Porphyrogenitus" was the surname given to emperors born in a room in this palace lined with porphyry brought from Rome—hence the expression "born in the purple."



COLUMNS OF PORPHYRY AND WONDERFUL FRETTED ARCHES IN JUSTINIAN'S TEMPLE

Almost overpowering in splendour is the interior of S. Sophia; for its adornment the treasure of nearly every country of the later Roman Empire was requisitioned. These monolithic columns of jasper and porphyry once adorned the pagan shrines of Asia Minor and Greece; Rome, too, contributed a share to this "terrestrial paradise." Little did its early devotees imagine that its precincts would later be the fame of the Prophet of Islam, for ever since May 29, 1453, when, sword in hand, the janissaries rushed into the temple precincts, S. Sophia has been a mosque dedicated to the religion of the Prophet of Mecca.

Of the aqueducts which supplied the city with water carried from the Thracian hills there is within the walls only one small piece to be seen, near the centre of the city. But there were numerous cisterns and reservoirs, some opened and some covered, from which the inhabitants drew their water. Two magnificent underground reservoirs were constructed by Justinian and still exist. They are now known by Turkish names, Yeri Batan Sarai and Bin bir Derek, and are really underground pillared palaces. The cistern of Bin bir Derek ("one thousand and one columns") was built in A.D. 528. It is a structure in two storeys, and 212 columns have been counted supporting massive domes; the area is about 70 yards by 60. These subterranean halls, with beautifully finished columns and capitals, must have been among the most attractive sights for visitors who came to see the wonders of Constantinople in the days of Justinian. Even to-day, after centuries of neglect, they are amazingly interesting and impressive.

The immediate surroundings of Constantinople offered the inhabitants of the well-to-do classes great conveniences for villa life. At Rome people who wanted to enjoy sea breezes in the heat of the summer had to make journeys of 15 or 20 miles to reach the coast, and most of the rich people preferred the mountain air up in the Sabine and Alban hills. But at Constantinople they had only to get into a boat and within an hour they could be at some charming spot on the Bosphorus. Scutari (Chrysopolis), Kadi-Keui (Chalcedon), the eastern coast of the Bay of Nicomedia, and the shores of the Marmora from the Golden Gate to the Palace of Hebdomon (Makri-Keui) were suburbs forming a greater Constantinople, of which (city and suburbs together) the population in the time of Justinian can hardly have been less than a million. On the little peninsula of Phanoraki, south-east of Chalcedon, the Emperor had a palatial villa, called Herion, to which the empress Theodora used to transport her court every summer. It is remarkable that in those days the Princes' Islands which lie opposite this coast and have been in modern times one of the most favourite summer resorts of the residents in Constantinople were but little frequented.

THE GREAT MONUMENTS. VIII
THE MYSTERIOUS IMAGES OF
EASTER ISLAND

BY MRS. SCORESBY ROUTLEDGE, M.A.

THE MYSTERIOUS IMAGES OF EASTER ISLAND

BY MRS. SCORESBY ROUTLEDGE, M.A.

Traveller and Writer on Ethnology

MR. and Mrs. Scoresby Routledge lived on Easter Island for more than sixteen months, engaged in studying its mysterious monuments. They reached the island in March, 1914, having sailed out from England in their own schooner-yacht "Mana," by way of the Straits of Magellan. In October of that year they first learnt of the outbreak of war from the German fleet which had made this out-of-the-way island its meeting-place in the Pacific—but which did not touch the expedition. In the following chapter Mrs. Routledge, to whom we are also indebted for this splendid series of photographs, tells us of the wonders of the island, already recounted fully in her book "The Mystery of Easter Island," to which those wishing to pursue the subject are referred.—EDITOR.

TWO hundred years ago, on Easter Day, 1722, the Dutch Admiral Roggeveen was cruising in the open Pacific; the coast of South America lay more than two thousand miles to the east and no land had been sighted for many a day, when there appeared on the horizon a solitary island of whose existence neither he nor any European had previously been aware. As he drew near to it he found the island to be no lotus-eating country with shady shores, girdled by a protecting reef; the great breakers rolled in straight from the Southern Pole and dashed themselves against high cliffs and a rocky coast, making the land tremble at times as with an earthquake. Here in this desolate place Roggeveen and his men saw a strange sight. "There were there," they write, "remarkable tall stone figures a good thirty feet in height," on their heads were crowns, around them areas of paved stone, and to these great figures, they tell us, the natives of the island did obeisance. This is the first occasion on which we hear of the mysterious statues of Easter Island.

Since that time other voyagers have stopped for a short while at Easter Island and have left us notes as to what they found there, but never till our own day has this extraordinary Pacific island received the serious attention it merits.

The visitor who wishes to reach it to-day can only count on communication by means of a little schooner which sails there once a year from Valparaiso and takes three weeks in transit. The vessel goes there in order to collect the wool crop from the island, which is now a ranch belonging to a Chilean company. It is triangular in shape, measuring in its greatest dimensions about thirteen miles by seven miles; a little group of two hundred and fifty natives live together in a hamlet on the west side near the landing place, the rest lies vacant, devoted ostensibly to the beasts, more truly to the statues and to the great past, for he who visits this strange place will find that the half of its wonders have never been told.

All round the coast now lie prostrate the statues that once adorned it, varying from 6 feet to 30 feet in height; some are broken, some are still intact, and near them are their great hats, of which some have been smashed in their fall while others lie at a little distance where they have rolled in their descent. In the whole coast only the broken-off base of one image is still in situ. The figures were originally placed on massive platforms of masonry known as "ahu." These platforms may be as much as 300 feet in length; on the side towards the sea the face of the masonry is sheer like a great wall, at the highest about 15 feet; in some cases this wall is formed of great unhewn slabs half as high again perhaps as any man, in others it is built of carefully wrought and fitted stone. On the summit is a platform on which once stood the images in a row with their backs to the sea; on the ahu at Tongariki (see illustration facing pages 796, 797) there were as many as fifteen. Towards the land the ahu slopes downwards gradually or in terraces; on this slope were exposed the corpses of the dead, while in it are vaults in which the bones were subsequently placed. The great statues have stood, therefore, watching over the departed. Behind them rolled the waves of the ocean, sometimes so near at hand that their spray broke over the figures, sometimes surging at the foot of a cliff hundreds of feet high.

There is, however, a yet stranger sight on the island.



COLOSSAL STATUE ROUGHED OUT AND LEFT DESERTED IN ITS QUARRY BED

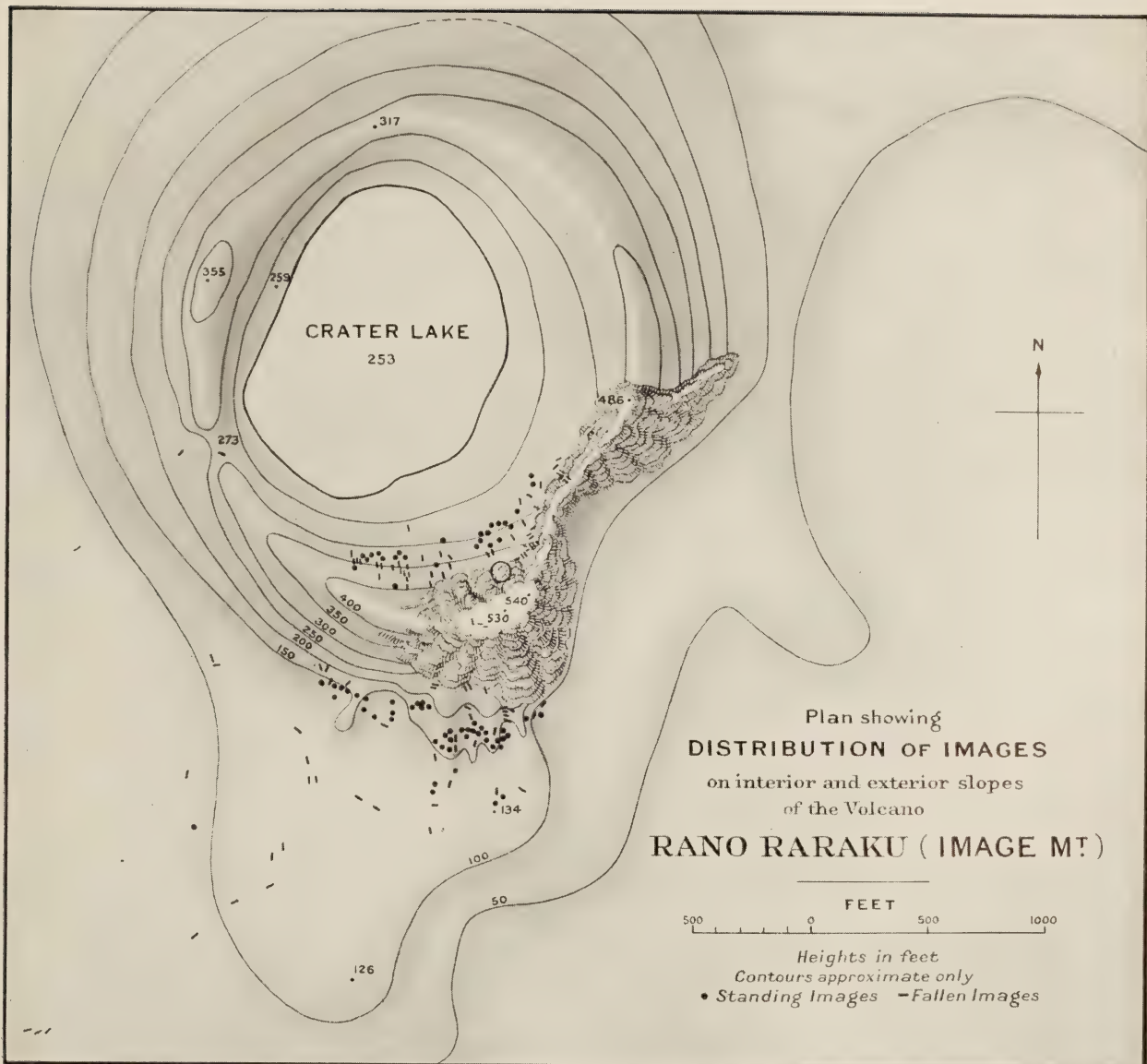
Among the quarries of Rano Raraku the scene is weird beyond words, almost terrifying; on all sides, begun, half finished and finished, the images may be seen lying in their rocky beds. The workable stratum consists of a solidified volcanic ash offering no great resistance to the primitive stone tools of the sculptors; from it the statues were carved on their backs, sometimes on their sides in the cliff face. Why were they abandoned? As this photograph shows, the method employed in the quarrying was first to rough out the lineaments and upper contours of the body by cutting downwards or sideways into the rock.



From a sketch by Mrs. S. Roulledge.

OUTER SLOPES OF RANO RARAKU WHERE THE IMAGES WERE QUARRIED

In this sketch we see the outer slope of the mountain from the south—the other side of the same part of the crater-lip shown in a following page. The ancient sculptors, though quarrying their statues from both within and without the crater, confined themselves to the southern half of the mountain where it is steepest and highest, perhaps because the rock of the other half was unsuitable. The images may here be seen set up, cast down, and still lying in their quarry beds.





From a sketch by Mrs. S. Routledge.

IMAGE THROUGED INNER LIP OF THE RANO RARAKU CRATER

Most obvious and accessible of the statues on Easter Island—indeed the only ones to attract the attention of the earliest visitors—are those that stand on platforms round the coast. But it will be found more systematic to deal first with those on Rano Raraku, as it was from this extinct volcano that the mysterious images were quarried. The drawing shows the inner lip of the crater, now filled by a lake, on the south-east; the map will also help in giving a grasp of the locality and the distribution of the images in it.



HOW THE ANCIENT FOLK OF THE SCULPTURES DISTORTED THEIR EARS

Above are two of the mountain statues, still standing but buried to their chins by a slide of débris; below is an example of yet a third class of image—solitary statues erected to guard ancient roads traversing the island. But they are brought together here for comparison, in order to show the different modellings of the ear. Both reflect an old custom, observed elsewhere in the South Seas, of distending the lobe till it resembles a loop of rope, but the upper example goes so far as to show the disk used for the purpose.



WEIRD INCARNATIONS OF INHUMAN PRIDE

Two more half-buried statues from the outer slopes of Rano Raraku show well the rope-like distortion of the lobe of the ear. But beside such points of detail the photograph gives some idea of the weird impressiveness achieved by these memorials of an unrecorded culture. Grotesque and inhuman they may appear with their flattened heads, pinched nostrils and empty eye-sockets; but seen backed by their own native landscape they take on an unmistakable dignity, and seem pregnant with one emotion at least—pride.

Towards the eastern end, some two hours' ride from the little village, is the crater of an old volcano known as Rano Raraku. The side towards the sea is a steep cliff, the remainder is a basin with rounded sides, and in the interior of the crater is a small lake. So far the voyager has seen nothing but prostrate images, but here on the outer slope of the mountain stand scores of the figures still erect, just as they were originally inserted in the ground, though not infrequently the earth has descended, burying them deeper, until in some cases only the tip of the nose is visible. They are strangely weird, these statues, as they gaze along the coast in their immovable calm, weirdest of all in the gloaming when, the sky behind them fired with gold and red by the sunset, they stand out black masses against the gleaming background.

For the first time it is possible to realise exactly what each figure was. It is cut off at the hips, the hands meet in front, and the ears, it is interesting to note, represent a fashion not unusual among native races, where the lobe is gradually distended until it forms a rope. The top of the head is flat, the eyes are sunken. These are no delicately carved figures to be studied in a building, they are grandly simple outlines to be viewed in the open air, and seen thus their effect is most striking and majestic.

Excavation makes the matter still clearer, as when the unexposed surface is seen it is found that much of it has been beautifully polished; the nails are long and tapering, and on the back of many figures is a strange design the origin of which has not yet been clearly ascertained. It represents generally three raised bands like a girdle, surmounted with one or sometimes with two rings, and below it is a figure like a widespread M; in one instance a statue was found which had been buried in the sand and on which there was also a ring on each of the buttocks. On the back of another were some additional carvings which excited the natives very much, but they were probably more recent work and of later date than the statue itself. It is interesting to note, too, the way in which the statues have been slipped into the hole and then gradually raised towards the vertical by inserting behind them a collection of stones of varying shapes and sizes. Generally the work has been very well done, whether it was to be seen or not; but sad to say, in some cases when uncovered the part underground is found to be scamped. In one case, for instance, the

sculptors have not troubled to make a right hand, which is missing altogether.

The marvel of the scene is increased on scrambling on to the rocks above. Here the visitor is in a huge workshop. First one figure catches his eye, then another, till the whole hillside seems alive with half finished statues. If he enters a narrow opening between rocks he will find himself in a hewn chamber like the side chapel of a great cathedral; a huge figure lies recumbent in front like the silent effigy of some great warrior; above may be another; beyond, a niche from which a third has been removed. As he glances to the right he catches sight of an arm or hand and realises that the walls on either side are also being hewn into great images; as he looks down he holds his breath, for his foot is resting on a mighty face. Such quarries succeed one another in seemingly endless succession. The figures are carved out lying on their backs; some of them are just begun, others are actually finished prior to removal; in some instances all the base has been cut away save a narrow ledge of rock like the keel of a boat, on which it rests; in other cases that, too, has been removed, and the statue is supported simply by stones, looking as if the slightest push would send it down into the valley beneath. In one instance the statue has been partially removed out of the quarry and lies broken in transit. Sometimes the niches can be plainly seen on each side of the recumbent statue where the workmen have stood as they chiselled it out, and we can thus count how many were at work upon it.

Leaving the outside of the volcano our student scrambles over the edge down to the lake which lies in the old crater basin. There, facing him on the hillside opposite is the same awe-inspiring sight; on the slope below stand the images, in the quarry above a further mass of half completed figures. Here also the stone tools lie all around as the workmen threw them down one day and left them, never more to return, and the busy scene was still. If we turn to the natives and ask them to explain to us what has happened, all they can tell us is a legend of an old lady who possessed supernatural power or "mana." One day the sculptors, so they say, insulted her, and she therefore stopped the work.

There is yet a third class of images on Easter Island. As



LABOUR NEAR COMPLETION, AND EXCAVATING AN ERECTED IMAGE

Finally the image (see upper picture) was jacked up with stones and the keel-like ridge of rock was cut away. Then comes the great mystery of their transport. Some, as the lower photograph shows, were set up on the slopes of the mountain; this was not difficult, as they could be eased down the incline and erected by undercutting the earth from their base and then hauling them upright. But others, we have seen, were destined for the coast—and this on an island where no timber grows for rollers!



AHU AT TONGARIKI FROM THE LAND WITH ITS MIGHTY—

Leaving for a moment the question of the quarries on Rano Raraku, let us turn to the destination of the statues. Some, it will have been seen from the sketches preceding were erected on the slopes of the mountain itself; the significance of these will be discussed later. Others however—and it is the mystery of their transportation that is the greatest of all—were removed to various points round the coast of the island and there erected with their backs to the sea on platforms of squared blocks, called by the natives “ahu.” Sometimes there



WHERE THE DEAD OF EASTER ISLAND WERE EXPOSED—

Not all the platforms were intended to support statues; but of the statue-bearing type there are very nearly one hundred round the coasts of the island, all conforming more or less to the same plan. A wall was built, perpendicular on the seaward side, with a central section projecting towards the sea broad enough to carry the statues which always faced inland. The Vinapu Ahu above is a typical example; the bulk of the visible masonry is the central portion, while part of the main wall may be seen stretching out like a wing on the right. The whole wall might be as much as 300 feet long and 15 feet high. On the landward side, however, the masonry slopes down like



—ARRAY OF FIFTEEN STATUES BROKEN IN THEIR FALL

would be only one to an ahu, sometimes more; in the case of the Tongariki Ahu, illustrated above, there were as many as fifteen. The great prostrate blocks in the photograph are their heads and trunks, broken in the fall; the only one of which a portion is still standing may be seen on the extreme right. From their position on the seaward edge of the ahu they have all fallen (or been overthrown) inwards on their faces towards the land. Two of the strange cylindrical hats they wore are visible in the right foreground.



—GREAT BLOCKS OF THE SEAWARD WALL OF VINAPU AHU

a glacis to about half the height of the wall, from which point a much gentler slope continues to ground level. Vaults for the reception of bones were made under this last, which gives a clue to the purpose of the ahu; they were tribal platforms, for the exposure of the dead while the statues probably represented tribal ancestors. Some ahu were built in the shape of pyramids divided perpendicularly down the centre.



GROTESQUE IN ITS POSITION, BUT A POSSIBLE KEY TO AN EASTER ISLAND MYSTERY

One of the mysteries of this mystery-fraught island in the Pacific is the number of images that were apparently being quarried at the same time. This, it has been assumed, would demand a greater population than the island could have supported. But the puzzle is partly solved by supposing that not all the statues were intended to be moved, some having been deliberately left as rock-carvings. Right or wrong in other instances, the theory seems to be justified in the case of the strangely situated statue illustrated above, which is carved out of the summit of the cliff and violates all the normal methods of quarrying.



FINE WORKMANSHIP THAT THE WEATHER HAS NOT SPOILED

The excavation of such statues as had been partly protected by landslides from the mountain revealed one fact else ignored—that the surface had once been beautifully polished; note the finish of the finely-wrought tapering fingers in this example from the southeast side. In some instances, however, the work was found to have been scamped on those portions that were unavoidably below ground in any case, although (with the exception of the carving on the back) all finishing touches appear to have been put in the quarries.



Photos by permission of the Trustees of the British Museum.

HOA-HAKA-NANAIA: FRONT

Of the two statues preserved in England, Hoa-Haka-Nanaia or "Breaking Wave" was removed by H.M.S. Topaze and presented to the British Museum, where with the other it adorns the porch. It was unique among the statues in that it was kept under cover in a stone house at Orongo.



HOA-HAKA-NANAIA: BACK

The back of Hoa-Haka-Nanaia shows as well as any the usual ornamentation of these statues. A triple band runs across the small of the back, with a raised ring above it and an M-shape below. The other carvings showing the "bird man" and ornamented paddles are unusual and probably done later.



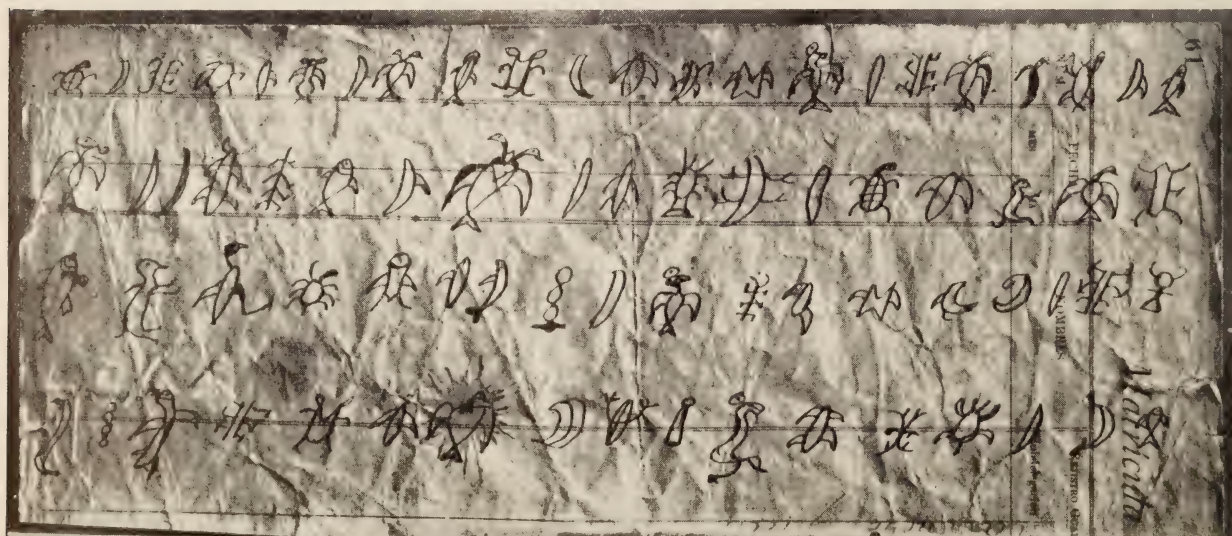
TWO OF THE MYSTERIOUS RED STONE HATS

In one respect the images on the coastal ahu differed from all others on the island—they were provided with great stone hats. These were of a different material from that of the statues—a kind of reddish tufa quarried from the hill Punapau at the end of the island opposite to Rano Raraku; a cylinder was hewn out, presumably rolled to the site required, and then worked into shape with a knob on top and a hollow beneath. Legend says they were placed in position by means of an earth causeway.



GIANT NEARLY TWICE AS BIG AS ANY OTHER ON THE ISLAND

To return to the quarries on Rano Raraku. After the first roughing out of the upper contours, the next step was to work downwards in a groove or trench on either side of the prostrate figure. Most of the details were certainly worked at this stage, although it is uncertain whether some of the finishing touches may not have been completed after erection. But it is hard to believe that this weighty giant, 66 feet long, was ever intended to be moved, although in all else the work seems to have been proceeding normally.



OLD MAN'S LAST ESSAY AT HALF FORGOTTEN LORE

Knowledge of the Easter Island script has almost entirely vanished from native memory; but one aged man on the very threshold of death, Tomeniko by name, had once been partly instructed in the lore, and could recall disjointed and sometimes contradictory facts. On an earlier occasion he had been induced to draw some of the glyphs on a Chilean registration form. It seems that these symbols were not so much words or phrases as aids to memory for guilds of professional reciters; nor did they bear a constant significance.

we stand among the statues of Raraku and gaze along the sea coast over their fallen brethren on the burial places, we shall become conscious that there are a number of prostrate giants lying singly scattered about inland. For long we could make nothing of these save to accept the natives' story that they were those that were in process of being moved to the ahu when the work stopped, but by degrees a different solution made itself clear. On Sunday, a lazy ride with no particular object brought us to the top of a hillock, and gazing over the plain between us and the sea we clearly saw a track or causeway radiating from the mountain and running along the low ground on which at intervals lay the statues. We then traced two more similar roads also radiating from the mountain, on each of which also lay figures. When we came to study these images carefully, in order to see, if possible, how they had been moved, it was found that the courses made by the rain had not, as one would have supposed, trickled down their sides as they lay on the ground, but from the top of the head in lines down the back; the statue must therefore have stood upright. Many, too, were so broken as to show that they had fallen with a great crash. Some lay on their backs, some on their fronts, but erecting them all in imagination, it was seen that so far from being in process of removal, they had at one time stood each with its back to the mountain, forming a great processional way. As the ancient traveller, therefore, approached the sacred spot, he found it guarded by one after another of these giants.

There is one other place of great interest not far from the landing-stage—another quarry where the red volcanic stone of which the hats are formed has been found. Here they were hewn out as great cylinders, and in that form apparently rolled to the burying places where they were worked into form. A knob was made on the top, a depression for the head, and when they were in place they projected over the forehead so as to shade the eyes. They were probably, like our own crowns, signs of rank, and were only worn by the figures on the ahu; for some reason or other, those on the mountain and roads had none.

Having now wandered rapidly over the island, we pause to ask ourselves the ever insistent questions: who did all these works, how were they achieved, and why, and when? In Asia and Europe, for thousands of years, kingdoms have been rising and

falling of which history tells the tale, but what was happening in that strange small island on the other side of the globe of whose existence we only lately became aware?

It is not infrequently laid down that the great works were due to some previous race now extinct, and theosophists even go so far as to say that the statues are so huge that they must have been made by men of like size. A well known New Zealand professor has lately advanced the theory that Easter Island was the burying place for a whole archipelago, the work being done by slaves; the remainder of this archipelago has, he thinks, been submerged and this submergence stopped the great work. Until, however, we have more convincing proofs of these theories, it is better to stick to more solid if less romantic ground. All that we can do is to give the answers as far as is yet possible, remembering that true scientists must be ready to discard even their strongest opinions if new discoveries or arguments render it necessary; and, hardest of all, where they have no means of knowing, must learn to wait.

We begin by taking the problem that can be most simply stated. How, we ask, did the inhabitants of a comparatively small island manage to accomplish so great a work? The statues in the quarries alone number over 150. That is, of course, a huge undertaking if all were in hand at the same time, but it is not likely that all these were intended to be turned into standing images. Some seemed to have been simply rock carvings, or, as we should call them, bas-reliefs. Again, sometimes a flaw was found in the stone as the work went on, and the statue therefore abandoned. Even in those cases where it was intended to turn out a fully finished image, the labour of quarrying it was not so great as might well be imagined. The stone was a soft volcanic ash, and calculating—as it has been seen that we can do—the number of men who could be employed at the same time, we reach the somewhat surprising result that a statue could have been roughed out in 15 days. As finished images there are about 60 statues standing on the slopes of Raraku, and there have been at one time on the ahu about 250 more. Given, however, a certain length of time for the work, two or three or more centuries, it will be realised that the labour is by no means inconceivable.

The greatest difficulty is to understand how their makers



HALF BURIED BY DÉBRIS FROM THE SLOPES ABOVE—

Stationed sentinel all over a little treeless island lost in the wastes of the Southern Pacific was once an army of grotesque, inhuman images unlike anything else that mankind has fashioned in stone. They stood lonely and scattered in the central regions; in ordered groups round the coast; in numberless crowds and companies on the slopes of one extinct volcano. That was the state two hundred years ago; to-day, without exception, the scattered and ordered members are cast down, and on the mountain slope great slides of débris from above have buried some completely or to their chins, thrown others forward on their face, or swept away their foundations so



—A GROUP OF MYSTERY STATUES ON EASTER ISLAND

that they now lie supine on their back. Add to this that the few hundreds who now represent the population are indifferent to the statues and all but silent on the subject, that the ruin of many was almost certainly deliberate, and that on the island no timber grows to provide the levers and rollers without which it is hard to understand how such ponderous masses could ever have been transported. Total these strange facts and acknowledge that here is a problem indeed awaiting solution!

contrived to move these enormous blocks of stone. The descent from the quarry was probably managed by making first a bank of earth down which they were hauled, and they were presumably erected on the platform by being dragged up a temporary causeway which was higher than the pedestal, and then lowered down on to it. The French Admiral La Pérouse considered a hundred men would suffice to erect a statue. But to most of the ahu there was not even a road, and it was a marvellous achievement to move a load of as much as forty or fifty tons unbroken up hill and down dale, over miles of stony surface, to the appointed place. It was presumably done by rollers and haulage, but there never seems to have been much wood or fibre on the island, and one is really inclined to agree with the most intelligent of our native retainers and decide as the only explanation that it must have been done by "mana" (magic).

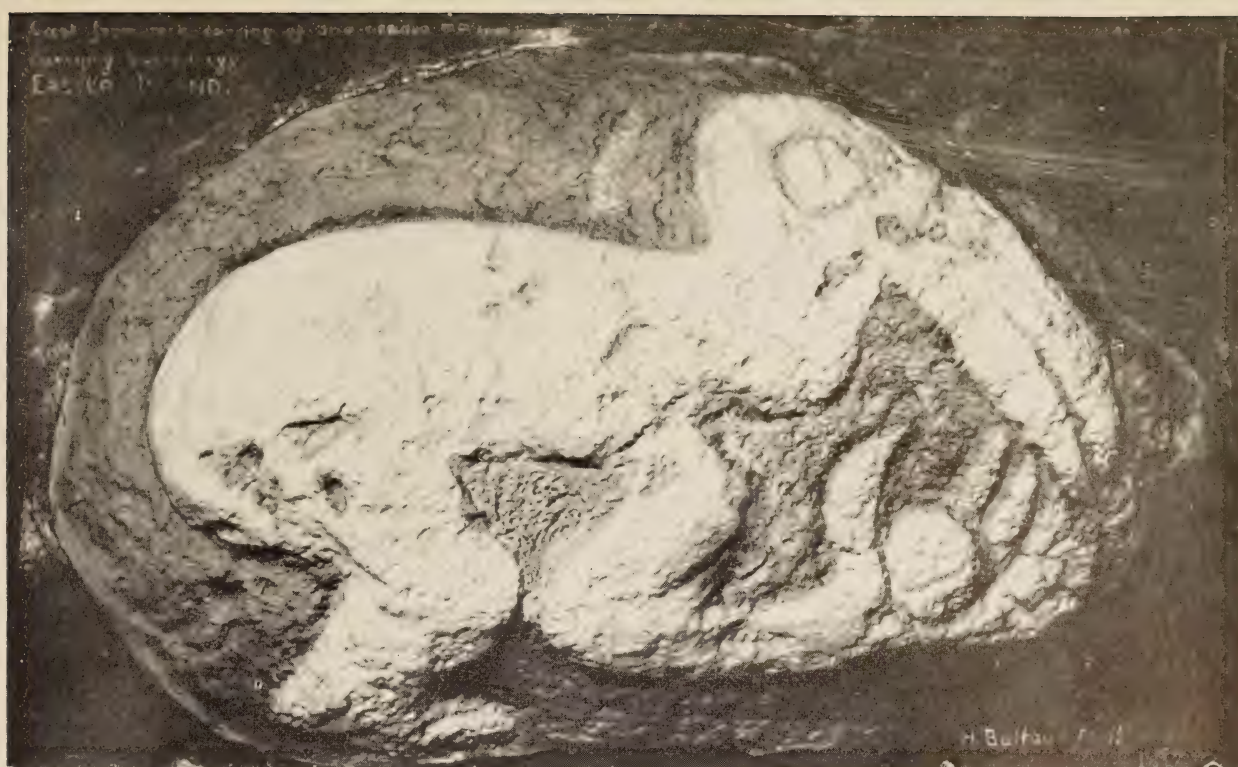
Next comes the question, who were the people who did the work? The answer may, incidentally, throw light on the question of why they did it. There is no real doubt that the statues were erected by the ancestors of the present people, and the inhabitants to-day are the same as found elsewhere in the Pacific. Throughout the islands two races have mingled; one, Melanesian, black with negroid features, found principally near Australia; the other Polynesian, a white race which has probably come from Asia, swept through Melanesia, and reached the farthest extremities of the great ocean. It is easy to see by the colouring of the inhabitants of Easter Island, varying from a sallow white to dark brown, that they are a mixed people. The language they speak is Polynesian, and the traveller from the Sandwich Islands or New Zealand will recognise many similar words. Curiously enough, however, we learn from the shape of their skulls that there is among them a very large proportion of the black Melanesian element from the West Pacific. It should be borne in mind that it is not only in Easter Island that these Pacific peoples have erected great works in stone. We have recently seen two statues, about 6 feet high, on the Austral Islands, some 2,000 miles to the westward, and even little Pitcairn was not without its stone images. It was, of course, the fact that they had this easily quarried stone which enabled the Easter Islanders to specialise, so to speak, in the manufacture of stone images.

The present people have no clear legends—a great deal of tradition was probably lost when, in 1862, the Peruvians carried away many of their principal men into slavery—but they do themselves hold that the statues were made by their ancestors, and they give odd little pieces of information handed down from father to son. They tell us in a few cases the names of the men who made them, and in one case they show how the hat was put on by building a causeway from a little hillock near to the top of the head of the image. The early voyagers tell us, too, that the people of that time had distended ears like the statues.

The strongest link, however, which connects the present people with the images is a very curious one. Till within the memory of those living, or who were living when we left the island, there was an extraordinary bird cult, and this bird cult had undoubtedly had at one time some relation to the statues. The great event of the year was the coming of a migratory sea bird, a tern, called “manu tara”; it arrived in September, the southern spring, and nested in large quantities on an outlying rocky islet. This islet was once part of a large volcano, Rano Kao by name, which forms the south-west end of the land; the rock has been strong enough to resist the power of the ocean, which has gradually washed away the rest of the seaward slope of the mountain until it forms a cliff of 1,000 feet high. If the world lasts long enough, the sea will force its way into the old crater lake two-thirds of a mile in width, from which it is now only separated by a narrow ledge.

Just where the top of the cliff begins to be narrowest are some rocks carved with strange figures of a man with the head of a bird, and near by is a village of low stone huts still in fair condition called Orongo. In July the tribe in the ascendancy for the time being, after some glorious cannibal feasts on the lower ground, ascended the mountain and took up their residence in these stone houses on the summit of the cliff from whence they looked down on the islet far below and waited for the coming of the birds.

It was the main object to obtain the first egg laid, and the man who did so was called the “bird man,” and became the great person of the year. It was not open to anyone to enter for the prize; it was necessary to be nominated by an individual with



Upper photo by permission of the Trustees of the British Museum.

BIRD MEN, CARVEN HEROES OF A FORSAKEN CULT

There is another class of carvings to be seen, of surpassing interest both in themselves and because they link the Easter Island culture with practices in other parts of Polynesia. They reflect the cult of the "bird man," and are connected with a custom still remembered by some of the "oldest inhabitants"—a custom that conferred a sort of sanctity upon him of certain nominated men who should secure the first egg of the year laid by a sea-bird that nests on a little rock islet called Motu Nui. The successful competitor went to reside on Rano Raraku, and was "taboo" for a year; is it possible that the statues on the mountain slopes represent bird men of the past? The carvings show bird headed men, in the upper example holding the coveted egg.



HALF-WAY STAGE IN THE TIRELESS WORK OF THE ISLAND QUARRYMEN

Yet a further step in the quarrying is illustrated above. After reaching a certain depth the workmen, still standing in their trenches, proceeded to undercut the figure until it was resting on a comparatively narrow ridge of rock like the keel of a boat. The interesting point is that the sculptors have worn grooves in the trenches where they stood, so that one can count the number of them at work. From such indications it has been calculated that fifteen days would have sufficed to reach this point in the operations.



TABLET COVERED WITH THE ONLY WRITING OF THE SOUTHERN SEAS

Yet a further mystery of Easter Island remains to tantalise the investigator—the script. It is the only definitely established instance of any form of writing having been independently evolved in the islands of the South Seas. The characters were engraved with a shark's tooth on wooden tablets of varying sizes, and were read in the manner known as “boustrophedon”—that is, alternately from left to right and right to left, after the fashion of an ox ploughing a field, as in the earliest Greek inscriptions.



STRANGE INCISIONS WHOSE MEANING IS LOST FOR EVER

One statue, otherwise quite normal in decoration, was found to have been carved, probably at a later date, with unusual designs on back and front, even on the face. These produced considerable excitement among the natives when they were exposed by excavation to the light of day; they must remain, however, unexplained.



ORNAMENTATION ON THE BACK OF A FALLEN STATUE

Several ways of decorating the back appear to have been prevalent; this was only discovered by excavation, as the design has weathered off the platform images, and is apparent only when one knows already what to look for. The typical design is exemplified on Hoa-Haka-Nanaia where there is one ring above the girdle, or on another page where there are two. Some statues, however, do not conform, such as the one above, which has a single girdle, no M and two rings on the buttocks; others are undecorated.



From "*La Pérouse's Voyage Round the World*"

NATIVES AND SAILORS BEFORE THE STRANGE STATUES OF EASTER ISLAND

First of Europeans to discover Easter Island was Roggeveen, a Dutch admiral, who reported that the cult of the statues was then in full swing. This was in 1722; when others came some fifty years later the statues were apparently regarded with little respect, though many were still standing. A quaint illustration from an early travel-book showing sailors making measurements and taking notes probably gives a faithful enough idea of the conditions—two statues more or less unimpaired, and still wearing their hats, but no hint of "taboo" on the part of the natives, who are apparently indulging their noted propensity for theft.

supernatural gifts, who said that So-and-so was a man whom the gods were willing should take the egg, but when he won it he must change his name, and this new name became subsequently the name of the year, in much the same way in which people say now, "the year So-and-so won the Derby." The competitors themselves resided in the village, but they sent their servants to wait in a cave on the islet below; when the moment came these latter rushed out to secure the egg, the successful one shouting to his master on the mainland by his new name: "So-and-so, shave your head; you've got the egg!" The winner shaved his head and indulged in transports of joy, while the losers, in their despair, cut themselves with stone knives after the fashion of the Old Testament.

It is easy now to see the meaning of the figures; they were symbolical of the bird man, and probably each represented a victorious competitor. These bird drawings tell us a story; we find them and others on the island so exactly reproduced in the Solomon Islands on the other side of the Pacific that there can be no doubt that they are from the same source. A few months ago, travelling in the Pacific, I met a missionary from the Solomon Islands. I showed him the M-like carving on the back of the statue, and he said at once that it was a bird design, representing two outstretched wings, very frequently used. If he is correct, we have the solution of one more of the baffling enigmas of Easter Island.

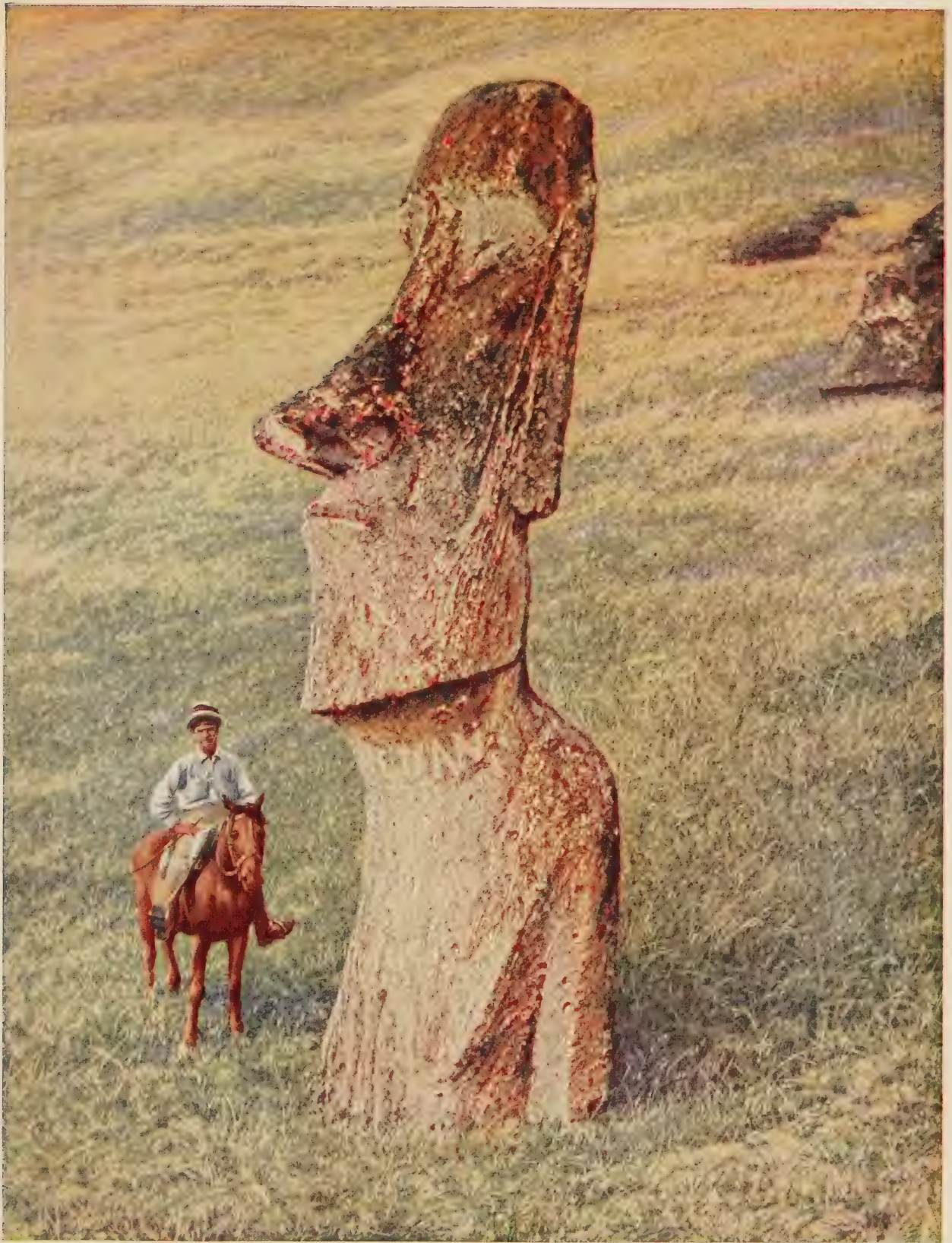
But there is even more striking relation between the bird cult and the statues. The islanders could not have even a bird village without a statue, and in one of the houses stood a statue, the only one under shelter, by name Hoa-Haka-Nanaia, or "Breaking Wave." It is this statue which was brought away by a British man-of-war, and stands under the portico of the British Museum. Anyone who, in a good light, will walk around it, will find on its back both the designs we have talked about, and also rough, and probably later, carvings of the bird man.

But let us return to our bird man, for here we have further proof that the bird cult and the statues were connected. Taking the egg in his hand and accompanied by his rejoicing friends he danced round the coast—and where was his destination? The place par excellence was Rano Raraku, the mountain of the

quarries. Here he lived for a year, five months of it in strict taboo; food was brought him, but it had to be cooked in an oven apart. Even the servant who had taken the sacred egg might not eat with his right hand as that had held the egg. At the end of the year a new bird man took the place of the old. The statues on the burial places no doubt represent ancestors; is it not, however, more than probable that the statues on the mountain, like the carvings on the rocks in the village, represent bird men?

If these were the people and these were the objects for which the statues were erected, can we in any way date them and say why the making stopped? We cannot tell when the work began—more than one wave of emigrants in canoes may, incredible though it appears, have found far off Easter Island. In Mangareva, about 1,500 miles to the west, the nearest inhabited land save Pitcairn, there are stories of at least three different migrations that touched there and went to an island which the old people are quite positive was Easter; which wave brought the fashion of making the statues we have yet to learn. We do, however, know, if Roggeveen is to be trusted, that only 200 years ago the cult of the statues was what we should call “a going concern.” Unfortunately, neither he nor any of the early voyagers found the quarries, but it is not likely that the statues would have indefinitely remained in place and been still worshipped if the manufacture had ceased. Roggeveen sailed away. Fifty years later came some Spaniards, Cook, and rather later La Pérouse. They tell us a very different tale. Some of the figures still stood in place, but many were thrown down. “The giant statues,” says Cook, “are not, in my opinion, looked upon as idols by the present inhabitants, whatever they may have been in the days of the Dutch.”

What happened then in those fifty years? We know what Roggeveen thought of the natives, we are left to guess what the natives thought of Roggeveen, but it is certain that for some generations before the advent of the first Christian missionaries there had been established a new cult, that of white gods with red faces who came in ships; and paintings of European vessels are found mingled with those of birds. Did the new cult then take the place of the old? Was there perhaps war between the adherents of the old and the new, and was it directly or indirectly



STRANGE FEATURES OF A STILL STANDING EASTER ISLAND IMAGE

Not strictly colossal are the images of Easter Island, but large enough in all conscience to add no little to their mystery and their problem; the size of this monster of inscrutable calm, unfathomable purpose, may be judged by the mounted figure beside it. Some of the many insistent questions that they evoke may be answered with greater or less certainty, but one fact seems to stand out clearly—that we ourselves are responsible for the veil that has been dropped over this corner of the earth, partly through diseases imported by the white man and partly owing to the less innocent attentions of slave raiders in quite recent times.

owing to the coming of the white men that the making of the statues on Easter Island came to an end?

All this we can only surmise, but we know definitely that the statues on the burial places were deliberately overthrown by rival factions, each anxious to deface the Rheims Cathedral of its rivals, and that the last ones were thrown down almost in living memory by the fathers of our own Easter Island friends, that is about 1835. In the first half of the eighteenth century, therefore, the cult was alive, and in the first half of the nineteenth century the last image vanished from the ahu. After the making of the stone statues was given up the people still continued to carve images in wood, which bear many points of resemblance to those in stone; anyone can see them if they will visit the British Museum.

Another kind of carving also lasted till recently, and forms one of the wonders of the island—the making of hieroglyphics on great tablets of wood some 6 feet long. Many of these were burnt on the coming of Christianity but a few scraps still survive. It is the only writing of its kind known in the Pacific, and it will be seen that some of the designs are those of birds or bird men. The principal authority on the script was the last great chief, who seems to have died about 1860. He lived in a bay on the north coast and once a year the professors of the art used to assemble there for a great gathering over which the chief presided. A handsome old islander told us that when young he was a member of the court and used to assist on these occasions; if the chief was not satisfied with the way any man recited from the glyphs he beckoned to this boy who led away the offender in disgrace. Our friend said that he himself tried to learn to write but his hand was not sufficiently steady to form the figures and he had at last to give up the attempt.

Indeed one extremely old man called Tomeniko, who could still draw some of the figures, died while we were on the island. He tried to explain, but he was old and ill, and his memory was failing. Many attempts have been made to translate the glyphs without any great success. Some deal with historical matters, lists of wars, and so forth, others are prayers, but it is probable that no one could really read them except those who wrote them—that is to say, they were not strictly renderings of speech, but

a kind of "memoria technica." If you put a knot in your handkerchief no one but yourself knows whether you wish to remember to go to a tea party or to pay your life insurance, and a similar knot at different times means different things. "The words were new," the people told us, "but the letters were old."

We shall never, therefore, be able to read the script, just as we shall never know the thoughts that passed through the minds of the makers of the great images, nor the strange ceremonies they enacted; these are gone for ever. But the broad outlines of the story—these we probably shall learn, and before very many years have elapsed. Surely, among all the varied Wonders of the Past, those of this little lost island of the South Pacific are by no means the least.

THE WONDER CITIES. XIX
PAGAN: CITY OF TEN THOUSAND
TEMPLES

BY RICHARD CURLE

PAGAN: CITY OF TEN THOUSAND TEMPLES

BY RICHARD CURLE

Author of "Into the East: Notes on Burma and Malaya"

Illustrated with photographs taken by Herbert G. Ponting, F.R.G.S.

OF the dead cities of the world, once the hub of great empires and vast activities and now lying ruined and still, none is more impressive than Pagan. Situated ninety-two miles south-west of Mandalay in Burma, it extends for twenty miles along the banks of the Irrawaddy, and its average depth is five miles. The remains of its pagodas and temples, of which many hundreds can be counted out of a rumoured total of 9,999, thus cover an immense area.

There is no more splendid, solemn and mournful vista than that of Pagan stretching infinitely about one in the deep silence of the wilderness. It has been deserted for over 700 years, and the undergrowth riots about its streets, creeps over its buildings and gives to its huge grandeur an air of irretrievable desolation. And yet on the whole the dry atmosphere of Upper Burma has marvellously preserved Pagan from the decay of time. Much has crumbled, it is true, much has been swallowed by the jungle, but much remains. Pagan viewed from a distance might still be the centre of a mighty kingdom.

A white, sandy track runs through the city, and an occasional bullock cart lumbers along where once gorgeous processions were accustomed to wend their way. In all directions can be seen, as one writer puts it, "countless pagodas in every stage of dissolution, down to mere swelling grass-covered tumuli. Hedges of thorny cactus, fields of millet, acres of purple croton, fill up all the intervening spaces."

Perhaps the finest view is to be had from the rest-house on the hill—the town fading on the plain and the broad river flowing into the distance, with the Tangyi hills in the foreground and beyond them the mountains of Arakan. On a peaceful evening this is, indeed, one of the most glorious sights in the whole of Burma.

The little of Pagan that can be seen from the river presents a strange and melancholy appearance. The old pagodas crowning the cliff give one an extraordinary suggestion of loneliness and abandonment, and the thought that behind them, invisible to your sight, lies an immense dead city, powerfully affects the imagination. The peace that surrounds Pagan is weighted with past history. It seems so incredible that man should have raised these innumerable shrines and then have vanished utterly from the scene. The modern village of Pagan, with its 6,000 inhabitants, only serves to heighten the contrast between what was and what is. The visitor to Pagan must assuredly feel the hand of time heavy upon him.

The city was founded in the year 847 by Pyimbya, thirty-third king of the dynasty of Thamok-darit, and it reached its zenith between the years 1010–1204 under kings Anawrata, Kyansittha, Alaung-sithu, and Marapati-sithu. It was under Anawrata that many of the great temples were built. He it was who conquered Thaton in 1050 and transported most of its population to Pagan to help him in his grandiose building schemes. He introduced Sinhalese Buddhism into Upper Burma, though it is probable that there already existed there a form of Indian Buddhism. Indeed, the old Kyauk-ku Temple which, unlike nearly all the buildings at Pagan, that are composed of brick, is partly built of stone probably dates from before 1010, and may be held to prove that Buddhism, of a kind, had already taken hold of Upper Burma before the time of Anawrata's religious revival.

The wife of Anawrata was an Indian, and their son, Kyansittha, was consequently half Indian. Alaung-sithu, said to have reigned for seventy-five years, was finally murdered by his son and successor Marathu, who was succeeded by his son, Marapati-sithu. Under this king, who reigned for thirty-seven years, Pagan reached the climax of its greatness and was the most cele-



THE TEMPLE OF ANANDA AT PAGAN: A GORGEOUS PALACE OF A THOUSAND CLOUD-CAPP'D TOWERS

Built of solid brick, strong and massive, yet inexpressibly light in appearance is this amazing temple. The central square measures 200 feet on each side, and has four projecting porches on each face. The crowning pinnacle is 183 feet high, soaring above the top (seventh) storey built in the shape of a Hindu or Jain temple; the lower storeys are square in shape. Of very solid structure internally, the building is intersected by only two corridors, which are eccentric. In the back of each of the four transepts is a statue of Buddha over 30 feet high, representing the great teacher in the four incarnations in which he appeared in this present world. The temple was built in the eleventh century in the reign of Kyansittha.



AWE-INSPIRING GUARDIANS OF THE PORTALS OF ANANDA AT PAGAN

Once the busy, beautiful city of King Anawrata, Pagan is now but a miserable little village, and its countless great temples, save for 136 in the care of the Government, are deserted and desecrated. One of the most complete and most beautiful of these literally countless pagodas is the one known as Ananda (Sanskrit: "The Endless"), and these giant leogryphs guard one of its entrances.



MAJESTIC EVEN IN ITS DESOLATION: THE PAGODA OF THATBYINNYU

Towering seven storeys high to its graceful pinnacle, and adorned at each corner with a tower on every storey, the Thatbyinnyu pagoda is a most impressive spectacle. The date of its erection is uncertain, but it is supposed to have been built about 1100 A.D. by the grandson of King Kyansittha. Its central tower is 201 feet high, and it differs from the magnificent Ananda temple in that it has only one main entrance instead of four, and consequently only one great Buddha in its inmost shrine.



MOONLIGHT VIEW OF A PORCH OF THATBYINNYU

Truly a wonder temple, Thatbyinnyu must have been an object of universal admiration and an inspiring shrine at which to worship for the followers of Anawrata's new religion brought into Burma from Ceylon. It is in some respects comparable with the wonderful temple of Shwe Dagon, described in pages 117 to 123, Vol. I. The human figure seems dwarfed by the porch alone; judge then the vastness of the whole building.

brated centre of Buddhism in Indo-China. He was succeeded by Zeya-theinka, who died in 1227.

Twenty-one years later, under Nara-thi-ha-pati—"he who fled from the Chinese"—came the end of the city and the empire of Pagan. The Emperor of China had sent ten nobles to Pagan on a mission, and the king, against advice, had them put to death. To revenge this insult, vast armies from Southern China overran the country and captured the city. The king, it is said, caused many pagodas to be pulled down in order to yield material for defensive works, but all was in vain. The fifty-third king of his dynasty, whose real name was Kyaw-swa, was the last king of Pagan. And since that far off time, which some put about 1250 and others about 1300, Pagan has been little more than a name and a ruin.

Apart from some fragments, there are no remains at Pagan other than religious. But that does not imply that it was essentially a religious city, for it was not. It was the capital of a remarkable state that extended from the gulf of Martaban to the borders of Southern China, and from the bay of Bengal to Cambodia. The inhabitants probably dwelt in mat houses, which have long since powdered into dust while the religious edifices remain. All early Burmese history is steeped in myth and legend, but from out these folk-lore tales we can reconstruct the busy life of Pagan under its kings. In the mediæval world of Asia it played an important part. Its wealth and industry, still evident to our senses after 700 years of abandonment, were famed within the East. In the annals of old times the kingdom of Pagan appears illustrious and great, and the whisper of that greatness yet hangs over its incomparable ruins.

As long ago as 1242, Queen Pwazaw wrote:

Pagan is called so because it is the most pleasant and beautiful of all kingdoms. It is also called Arimaddana because it is inhabited by people who are warlike and brave and are able to vanquish their foes, who dread even the sound of its name. Its people always enjoy immunity from danger and are free from pain. They are well versed in every art and possess various industrial appliances. The country is full of useful things, the people are wealthy, and the revenue enormous. It is a glorious kingdom and its subjects are . . . known to be glorious and powerful.

But little of the city, as has been explained, can be seen from the Irrawaddy whose high banks shut out its enormous spaces. One must land and look for oneself, one must spend days there and let the details and the vistas sink into one's consciousness. Nothing can properly convey the marvellous sight that meets the eye. In all directions spreads the enormous panorama of the dead city. Its situation is strangely isolated. Beyond the sheer cliffs of the river which winds away glinting and placid into the distance, a low plateau cut by ravines opens before one, with the hungry jungle pressing upon the city and pouring like a stream wherever it can get a foothold. The cliffs themselves are topped by pagodas, many of which lie two-thirds buried in ploughed fields, and one of the most beautiful near the river is the Chaukpa-hla, which was built in the twelfth century. In the dry weather the whole scene has something of the aridity of a brown desert, but when the rains fall the acacias bloom and the ground is covered with yellow flowers.

The pagodas of Pagan are of every kind. In its heyday it sheltered Buddhist fraternities from Ceylon, Siam, Nepal, the Shan States, Pegu, and China, each fraternity living and plotting against the others in their separate quarters, and these have left their mark upon the architecture. There are bell-shaped pyramids, pumpkin-shaped pagodas, Ceylon dagobas with their knob-like domes, square pagodas, cruciform pagodas. These last, with their vaulted roofs, are the predominant type among the chief buildings and resemble Western ideas of churches rather than Eastern ideas of pagodas. The Government have 136 of the principal pagodas in their charge, and the care now taken of them will do much to prolong the life and keep green the memory of Pagan.

The three principal temples in Pagan are the Ananda, built by Kyansittha, the Thatbyinnyu, and the Gawdawplin, built by Marapati-sithu. The Ananda is the most magnificent of the three. It is a square of nearly 200 feet on each side, with projecting wings that make it 280 feet across each way. It consists of seven storeys, six being square, diminishing in size, and the seventh being shaped like a Hindu temple. It is about 183 feet high. Within, two narrow corridors wind about, and in the rear of each of the four transepts there stands a 30-foot image of Bud-

dha. They represent the four Buddhas of this present world cycle, Kaukkathan, Kathapa, Gawnagong and Gautama. There is beautiful tile work in the Ananda, and in the niches of its walls there are several thousand carved groups and images depicting scenes in the life of Buddha. The Ananda was built in the eleventh century. Thatbyinnyu, which is 201 feet high, was built about 1100, and Gawdawplin, which is 180 feet high, in 1200.

These three temples lie close together in the heart of the city, but scattered elsewhere, sometimes far distant, are other pagodas of superb appearance and, to this very time, deeply venerated by devout Burmese. The Shwe-Zigon, for instance, one of Anawrata's erections, is said to contain a frontal bone and tooth of Buddha. The golden "hti" upon the summit of its dome is hung with bells. Another venerated pagoda, though not architecturally lovely, is the Nanpaya, which Manuha, the captive king of Thaton, built beyond the Myinkaba stream. It holds four figures of Buddha: three are seated, the tallest being 50 feet in height, and the fourth, which measures 90 feet, is recumbent. The ruins of the king's palace, made of greenstone, are near by.

The largest of all the pagodas in Pagan is the Dhammayangyi, which was begun by Narathu but never completed. It is now in a dilapidated condition. One of the most interesting and perhaps the oldest is the already mentioned Kyauk-ku, inside of whose square tower, now half smothered in jungle, there rests a gigantic figure of Buddha. This temple was inhabited long after the city ceased to live, and it remained a refuge for priests and great nobles down to the year 1637.

It is impossible to give even an approximate list of the memorable pagodas of Pagan. There is the Nagayon whose carving shows the influence of serpent worship, the Mingalazedi with its glazed tiles, the Tangyi-sway-daw with its golden dome above the shining white of its brick, the Maha Bodi covered with niches full of seated Buddhas, the Sulamani, and many other less well known shrines.

Words do not convey much, and here even photographs may fail. Pagan must be seen in its grandeur, its solitude, and its vastness to be entirely comprehended. For 700 and more years it has been drowsing in the wilderness by the river's bank, and one feels that 700 years from now it will be drowsing still. Its

overthrow by time is slow, but it is sure. At long last Pagan will be a mere hummock in the jungle; it will disappear into the forest as once, long ago, it rose like a miracle out of the same forest.

THE SEVEN WONDERS. VII
THE GREAT PYRAMID
BY MARGARET A. MURRAY

THE GREAT PYRAMID

BY MARGARET A. MURRAY

Lecturer on Egyptology at University College, London

IN pages 365-374 Professor Peet has told, with much instructive detail in a little space, the story of the pyramids of Egypt without special reference to the Great Pyramid, the chapter here given having been reserved to form the last of our series on *The Seven Wonders*. Among the illustrations accompanying Professor Peet's contribution are several that show the Great Pyramid in various aspects. The two chapters should be studied in conjunction.—EDITOR.

OF all the Seven Wonders that astonished the ancient world the Great Pyramid not only survives to modern times but still retains its hold upon the popular imagination. It is one of the few structures from the distant past that have defied the ravages of time and the still more destructive ravages of man. The chief damage that it has sustained is the stripping off of the outer casing, which was intact only five hundred years ago; it was torn off by the rulers of mediæval Egypt, partly in a wild hunt for concealed treasure, partly as a convenient quarry from which to obtain worked stones. Yet the amount of stone removed was comparatively small, and the Great Pyramid still stands firm and solid as the rock on which it is founded, vying with the everlasting hills in grandeur and immutability. Seen by moonlight or in the clear air of the dawn, in the rosy glow of the sunset, in the fierce glare of a summer noontide, or rising like a lofty mountain above the morning mists of the valley, the Great Pyramid dominates the landscape and fires the imagination.

The master mind that conceived the idea of this huge structure reigned over Egypt for more than sixty years, and was known to his people as Khufu, to the Greeks in later days as

Cheops. Herodotus tells us that he was "a most flagitious tyrant, he shut up all the temples and forbade the sacrifices." Herodotus had obviously received his information from the priests, to whom Khufu's action would, of course, have appeared iniquitous, but read in the light of the later history of Egypt it is evident that we have here one of the many episodes in that long struggle for power between the king and the priesthood which continued throughout the whole historic period until the Persian conquest put an end to it. The idea that the Great Pyramid was built by slave labour is probably false. During the three months of the inundation the whole land was under water and no agricultural work could be done; the Pharaoh then set the labourers to large public works, and during that period they were fed and housed. The Great Pyramid may therefore be regarded as the monument, not of a tyrant, but of a wise and beneficent ruler who saved his people in the dread days of scarcity.

The ancient Egyptian name of the Great Pyramid is Yakhut-Khufu, "Horizon (i.e., burial-place) of Khufu." The name shows that this gigantic bulk of masonry was actually erected as a tomb, the only other evidence being the sarcophagus in the so-called "King's Chamber."

The entrance to the pyramid is on the north face, from which a sloping passage descends, partly through the masonry and partly through the rock, to an underground chamber. This passage offers a clear and uninterrupted view of the northern sky, a fact which has given rise to the belief that the Great Pyramid was built for astronomical observations. The underground chamber was probably intended to be the burial vault, but it was never finished, and the resting place of the mightiest of Pharaohs is unknown.

About 63 feet from the entrance another passage leads upwards in the mass of the pyramid, and at the junction of the ascending and descending passages is the end of a plunderer's tunnel. The plunderer in this case was no less a person than the Khalif Mamoun, a mediæval ruler of Egypt, who had heard the tradition that the pyramid was a storehouse of hidden treasure. Stories of life-sized cocks made of gold and precious stones, of ewers cut from a single emerald, of coined gold lying in heaps, so inflamed his desires that he spent an enormous for-



Photo by Donald McLeish.

NORTH FACE AND ENTRANCE OF THE MOST ROYAL TOMB EVER PLANNED BY HUMAN ARCHITECT

Has ever man conceived such a tomb for himself as the mightiest of Egypt's early dynasts? Kings and dynasties there had been in Egypt before, but Khufu was the first to give imperial prestige to the land whose divi led wealth and resources had been welded by his predecessors into a conquering power; pyramids there had been before, but never before or since the days of King Khufu has a pyramid been planned or constructed so immense as this, the Great Pyramid at Gizeh that after ages were to hail as one of the world's Seven Wonders. Long since rifled of the poor body it housed, it stands on a rocky platform west of the Nile, not far from Memphis, ancient seat of the king who built it.



Photo (left) by Underwood Press Service.



WITHIN AND WITHOUT: STUPENDOUS MASONRY OF THE GREAT PYRAMID

Two views of the massive blocks that went to build the mightiest structure ever raised by man. So perfectly are they jointed that a knife-blade cannot be forced between them. On the left, a view looking up the Grand Gallery: on either side are visible the raised ramps that border the passage, while the deep grooves in the floor were probably intended to help the haulage of the huge granite sarcophagus found in the "King's Chamber." On the right is a photograph taken half-way up the exterior; this was once smoothly faced with limestone, long since removed. Each of the four sides measures 755 feet 8 inches and so accurately did the architect plan that there is nowhere an error of more than an inch.

tune in breaking into the solid structure, to find nothing more than an empty sarcophagus without even a lid.

To prevent access into the upper chambers the ascending passage was plugged up with blocks of granite, which formed an impenetrable barrier. But it is evident that the builders did not intend the structure to be entirely closed, for the true entrance to the pyramid was by a turning stone which Strabo says gave at once on to the descending passage. Strabo's description shows that he actually saw this stone door and the method of moving it. It is probable that the door fitted so closely that it was indistinguishable on the outside from the other stones, and it is also probable that the secret of it was known only to the priests of the pyramid.

The ascending passage increases suddenly in width and height, and becomes the Grand Gallery. The stone floor has a ramp on each side; and the centre portion, up which the breathless visitor painfully climbs, is scored across with deep horizontal grooves; these were probably made to facilitate the moving of the granite sarcophagus. The Grand Gallery ends as suddenly as it began in a short, horizontal passage which leads through an ante-chamber into the so-called King's Chamber. The reason for making this chamber is still a problem; it contains a sarcophagus, but the actual burial place was below the ground. It does not stand in the middle of the pyramid; it is not in line with the diagonals, and it is not vertically under the apex; its position was purposely designed, but the reason of the asymmetry is not known. The sarcophagus, carved from a solid block of granite, is 7 feet 6 inches long, 3 feet 3 inches wide, and 3 feet 4 inches high. It has been cut to hold a lid, but it is possible that the lid was never brought into the pyramid. When struck the sarcophagus gives out a clear, bell-like note, ringing down the dark passages like the tolling of a knell.

Vertically in line above the King's Chamber are five little chambers; they are thought to be placed there to relieve the weight of stone over the King's Chamber, which would otherwise have been crushed by the superincumbent mass. In the two uppermost of the five chambers the two names of Khufu are written in red paint on the blocks; this was done by the quarrymen of long ago when they hewed the stone out of the quarries

of Turrah, marking each block with the king's name and the place where it should be set. These are the only inscriptions found in or on the pyramid, though Herodotus says that there was an inscription on one of the outer faces; and 'Abd El-Latîf, who was more than a thousand years later than Herodotus, also mentions inscriptions on the outer casing.

Where the ascending passage enters the Grand Gallery a horizontal passage leads southward to the "Queen's Chamber." This is also an unfinished part, for though the roof and walls are of the finest ashlar masonry the floor is quite untouched and rough. The names of the two principal rooms in the pyramid, the King's Chamber and the Queen's Chamber, were given by the Arabs in modern times, probably because of their likeness to the burial niches of the Moslems, the ceiling of a man's being flat, of a woman's pointed. From both chambers two airshafts lead out to the surface of the pyramid; they were to bring in air to the workmen; when the work was finished and the airshafts no longer required, the outer casing of the pyramid blocked the apertures.

At the junction of the ascending and horizontal passages a well-shaft was sunk through the masonry and the rock down to the descending passage near the underground chamber.

A visit to the interior of the Great Pyramid is most impressive. The black impenetrable darkness; the utter stillness; the feeling that above and around and below are solid masses of stone reared by hands long dead; the knowledge that one of the mightiest of the mighty trod those floors and hoped to rest for ever within the structure; all combine to make the Great Pyramid one of the most mysterious and solemn of all the ancient buildings in the valley of the Nile.

The ascent of the pyramid is an event to be remembered. Now that the smooth outer casing has been stripped off, the sides of the pyramid are like a giant's stairway. The huge blocks of stone rise like steps, up which the pilgrim is pushed or pulled by stalwart Arabs. But on reaching the top, now no longer a point but a platform, what a view is spread out! The yellow sands of the desert, the green fields, the wide flowing river, the distant cliffs which change colour with every hour, all flooded with the clear Egyptian sunlight, make up a panorama unequalled in the



UNIQUE CHAMBERS AND GALLERIES OF THE PYRAMID OF KING KHUFU

The pyramid that King Khufu built to be his sepulchre 5,000 years ago is notable not only for exceeding all its kind in size, but by reason also of its internal structure. It is calculated to contain at present 85,000,000 cubic feet of masonry as against the 60,000,000 of the Second Pyramid; but, apart from this, it differs in having two chambers built in its very heart as well as the normal subterranean one. Compare this section with those of the Second and Third Pyramids facing page 368, Vol. II. The numbers here refer to the position of five strange isolated blocks, unique in being completely pierced with drill-holes; their purpose or original location is unknown.



KHUFU, BUILDER OF THE GREAT PYRAMID

King Khufu, or Cheops, the fourth-dynasty monarch who made his name famous for all time as the builder of the Great Pyramid at Gizeh, is also perpetuated by the inimitable portrait statuary in which the Egyptian art of his period so excelled.

world. Far in the distance gleams the white mosque of the citadel, flanked by its two minarets, lineal descendants of the two obelisks which guarded the ancient temples of Egypt.

Standing on the top of the Great Pyramid, the country and the history of Egypt, pioneer of the civilisation of the world, lie spread at one's feet.

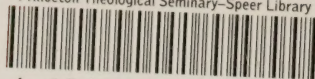
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